A REVIEW OF PERSON-PORTABLE INSTRUMENTS FOR CHEMICAL SPILL RESPONSE

EE-118

A REVIEW OF PERSON-PORTABLE INSTRUMENTS FOR CHEMICAL SPILL RESPONSE

by

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ABSTRACT

A review of commercially available instruments has been compiled. According to information from manufacturers and distributors, these instruments are person-portable, field worthy and provide rapid quantitative results for a number of chemicals from Environment Canada's spill priority list. The main body of the review contains features of the listed instruments which are relevant to spill responders. Some of these features are display characteristics, detection levels, response time, accuracy, ranges for detectable compounds, operating conditions, power requirements, physical dimensions, and price. Quick reference charts allow the user to "zero-in" on the instrument(s) of interest by organizing the information alphabetically by manufacturers, by sampling matrix (e.g. soil, water, air) and by the specific compound of interest.

RÉSUMÉ

Un répertoire a été établi des instruments sur le marché qui, selon l'information fournie par les fabricants et les distributeurs, peuvent être transportés par une personne, conviennent aux analyses sur le terrain et permettent de mesurer rapidement un certain nombre de substances chimiques figurant sur la liste des substances d'intérêt prioritaire en cas de déversement établie par Environnement Canada. La partie principale du répertoire présente les caractéristiques des instruments utiles sur les lieux de déversement, notamment les caractéristiques d'affichage, les niveaux de détection, le temps de réponse, l'exactitude, la gamme de mesure des composés décelables, les conditions de fonctionnement, les exigences d'alimentation, les dimensions et le prix. Des tableux de consultation rapide permettent à l'utilisateur de trouver les instruments l'intéressant à partir de l'information organisée alphabétiquement par fabricants, milieux d'échantillonnage (ex.: sol, eau, air) et composés.

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A REVIEW OF PERSON-PORTABLE INSTRUMENTS FOR CHEMICAL SPILL RESPONSE

There is an ever-present need for person-portable instruments which can provide field analysis of chemicals spilled in the environment. The analytical instruments industry has responded to this need by developing hundreds of portable units for various applications. This report is designed as a reference to spill responders requiring information pertaining to portable instruments currently available in Canada.

The instruments listed in this review are person-portable, field worthy, and provide rapid quantitative results for a number of chemicals from Environment Canada's spill priority list. The inclusion of instruments which satisfy the aforementioned criteria is based solely on information supplied by the manufacturers and distributors. The majority of these instruments use DC power. A few of the reviewed instruments have been designed for the field, but use only AC power. This is due to the large battery pack which would be required to run them, making transportation of these instruments impractical. All of the instruments provide concentration values to the user. Spot tests and devices with only audio or visual alarms have not been included.

For each instrument, or series of instruments, a 1-2 page information sheet is provided. The information includes the full address of both the manufacturer and the Canadian distributor (if one exists), the name of the instrument and the detection method employed. Also included is a description of the instrument features such as display characteristics, alarms, detection levels, response time, accuracy, operating conditions, power requirements, and ranges for detectable compounds. The physical dimensions of weight and size as well as the price in Canadian dollars follow the instrument description. The listings are alphabetical with respect to the name of the manufacturing company.

Three charts for cross-referencing information are also included. The first list organizes the information in accordance with the body of the review (i.e. alphabetically by manufacturer) for quick comparative scanning of instruments. The second listing divides the instruments into groups defined by detection media (i.e. air, water, soil). Within each group, there are subgroups of instruments with the same detection method. A third chart allows the user to select a compound (listed alphabetically) and determine which instruments can be used for quantitative analysis.

As electronics and sensor technology advances, many more chemical analysis processes will become feasible in a hand-held battery-powered unit. This review is a current summary of commercially available equipment. It's main purpose is to aid the users of portable instruments to keep abreast of the instrument industry.

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Flanagan and Gerald, "Applications in Field Testing for Organics and Inorganics", Marine Chemist/Safety Inspector Newsletter, Volume 1, #4, Halifax, N.S. 1986.

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MANUFACTURER:

Allanco Iolite Monitor Corporation
692 Derwent Way, Annacis Industrial Estate,
New Westminster, British Columbia.
V3M 5P8

MODEL NAME:

AIM 3000 Tri-Gas Detector

DETECTION METHOD:

Diffusion type Semi-conductor Sensor for toxic/combustibles
Micro Fuel Cell for Oxygen
Solid state Electrochemical Sensor for CO/H_2S

MODEL DESCRIPTION:

This detector monitors three air conditions simultaneously. As well as giving present levels of toxic/combustibles (%LEL), oxygen (% vol), and Carbon Monoxide (ppm-H_2S optional), this unit monitors TLV and STEL of known hazardous gases. As with the AIM 815-Z, the toxic/combustibles sensor can be set to one of 33 pre-calibrated gases for more accurate readings.

The capabilities of each sensor is given below:

SENSOR	RANGE	RESPONSE TIME	ERROR
Tox/Combust.	0-90 % LEL	0.5 s	5% LEL
Oxygen	15-25 % vol	15 s	0.1 % vol
CO_2	0-500 ppm	30 s	4 ppm
H_2S	0-250 ppm	30 s	2 ppm

Alarm levels for all sensors are preset. The visual alarm is a system of scaled LED's for relative danger level. The rechargeable lead-acid battery provides 7.5 hours of use.

UNIT SIZE: 47 cm x 6.4 cm diameter

UNIT WEIGHT: 1017 g

UNIT COST: $ 1850.

MANUFACTURER:

Allanco Iolite Monitor Corporation
692 Derwent Way, Annacis Industrial Estate,
New Westminster, British Columbia.
V3M 5P8

MODEL NAME:

AIM 815-Z Portable Gas Detector

DETECTION METHOD:

Diffusion type Semi-conductor Sensor

MODEL DESCRIPTION:

This hand-held gas sensor is sensitive to Toxic/Combustible gases. The general sensing function will give basic information of unidentified toxic/combustibles concentration in the air. When the contaminant gas is known, however, the unit can be keyed in to one of 33 pre-calibrated gases for more accurate results. These gases include acetylene, ethylene, hydrogen, gasoline, hydrogen sulfide, methane, toluene, and propane. The gas level is displayed in %LEL and/or IDLH readings. An audio-visual alarm is triggered if a preset value is exceeded.

The sensor response time is less than 1 second within the temperature range of -10C to +50C. The sensor has a life expectancy of at least one year. The rechargeable lead-acid battery supplies power for 7.5 hours of use.

UNIT SIZE: 40 cm x 6.35 cm diameter

UNIT WEIGHT: 1 kg

UNIT COST: $ 1298.

MANUFACTURER:

Anacon
P.O. Box F,
19 Bartlett St.,
Marlboro, MA. 01752
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Anacon Ambient Air Monitors

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These hand-held monitors give rapid results to low concentrations of a single toxic gas. The range can be suited to specific requirements from a 0 - 1 ppm scale to a 0 - 500 ppm scale. The probe used contains a polarographic cell which is ion-specific. The first instrument developed in this series was built to test for chlorine. The current generated by the reduction of chlorine is amplified at the probe, sent to the main unit, and displayed on an analog scale. The probe status is continuously monitored to ensure that it is functioning correctly. There are probes available now which are able to monitor levels of Hydrogen Chloride, Bromine, Hydrogen Fluoride, Boron Trichloride, Sulfur Dioxide, Hydrogen Cyanide, Hydrogen Sulfide, and Chlorine.

The probe is designed to operate in the temperature range of -40C to +40C and is accurate to within 3% of full-scale. The built-in alarm level is preset and has a response time of less than 3 seconds.

UNIT SIZE: n/a

UNIT WEIGHT: 1.3 kg

UNIT COST: n/a

MANUFACTURER:

The Analytical Development Company
Pindar Road,
Hoddesdon, Herts.
EN11 0AQ
England

DISTRIBUTOR:

Nortech Control Equipment
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

ADC PM2 Series

DETECTION METHOD:

Non Dispersive Infrared Absorption

MODEL DESCRIPTION:

This instrument uses double-beam infrared light to provide analysis for a single heteroatomic gas within 10 seconds of sampling. Several models are available for different gases including carbon monoxide and methane in % levels. An internal pump with flowmeter pumps 100 - 400 mL/min of air through the cell. The operating temperature range is 5C to 35C. The display is optional analog or LCD. The maximum range is 0 - 100% concentration (can be reduced) with a scale error of 2%. An output of 0-1 V enables a chart recorder to be added. The power is supplied by a 12 V battery for 8 - 10 hours of continuous use.

UNIT SIZE: **12 cm x 20 cm x 30 cm**

UNIT WEIGHT: **4.5 kg**

UNIT COST: **Analog display - $3975.**
Digital display - $4565.

MANUFACTURER:

Arizona Instrument Corp.
408 Pitt Street,
Cornwall, Ontario.
K6J 3R2

MODEL NAME:

Jerome 621 Hydrogen Sulfide Analyzer

DETECTION METHOD:

Gold Film Sensor

MODEL DESCRIPTION:

This instrument measures low concentrations of hydrogen sulfide in air and incorporates a microprocessor for linear results and auto-zeroing. The detection range is 0-500 ppb; an optional dilution module enables concentrations up to 5 ppm to be accurately analyzed. The concentration is displayed within 13 seconds on an LCD meter. The accuracy is ±3% and the sensitivity is 3 ppb. An internal pump maintains a flow of 150 cc/min. The operating temperature range is 0-40C. The power is supplied by a rechargeable internal battery pack or by AC mains. An RS232 port enables external datalogging and analysis equipment to be incorporated.

UNIT SIZE: 30.4 x 20.3 x 15.2 cm

UNIT WEIGHT: 3.63 kg

UNIT COST: $ 12,000. - includes sampling/data acquisition package, maintenance kit, and carrying case.

MANUFACTURER:

Arizona Instrument Corp.
408 Pitt Street,
Cornwall, Ontario.
K6J 3R2

MODEL NAME:

Jerome 411 Mercury Vapor Analyzer

DETECTION METHOD:

Gold Film Sensor

MODEL DESCRIPTION:

This monitor provides rapid analysis of ambient or sampled air for concentrations of mercury vapour. The LCD screen shows concentrations in milligrams of mercury per cubic meter. The range of the instrument is 0.000 to 1.999 mg/m^3. The instrument has a response time of one second during continuous monitoring (survey mode) and maintains accuracy of within 5%. The best accuracy is achieved when the instrument is in sampling mode, in which a distinct sample (not a continuous flow) is gathered and analyzed over a 10 second period. There is an internal pump which produces a flow of 750 cc/min. The operating temperature range is 0-40C.

The internal battery pack consists of rechargeable nickel-cadmium batteries which provide up to 4 hours of use per charge. The unit can be powered by 115V AC when used at a serviced workstation. The calibration kit, maintenance kit, and carrying case can all be bought as accessories and are all recommended for field use.

UNIT SIZE: 33 x 15.2 x 10.1 cm

UNIT WEIGHT: 2.27 kg

UNIT COST: $ 6300. - includes battery charger, probe and accessories, calibration kit, maintenance kit, and case.

MANUFACTURER:

Armstrong Monitoring Corporation
215 Colonnade Road South,
Nepean, Ontario.
K2E 7K3

MODEL NAME:

amc-1100 series

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These pocket-sized instruments monitor levels of a single gas. The LCD screen displays levels with a response time of less than 20 seconds. The audible alarm is tripped when a factory pre-set level is exceeded. The instruments operate within the temperature range of 0C to 40C. The capabilities of each sensor is described below:

Model	Gas Detected	Range	Alarm Point
amc-1101	Carbon monoxide	0 - 500 ppm	100 ppm
amc-1102	Oxygen	0 - 25 %/vol	19 %
amc-1104	Hydrogen Sulfide	0 - 100 ppm	10 ppm

A single disposable 9V battery will supply 30 hours of continuous use.

UNIT SIZE: **8.0 x 14.5 x 3.6 cm**

UNIT WEIGHT: **310 g**

UNIT COST: **$650.**

MANUFACTURER:

Armstrong Monitoring Corporation
215 Colonnade Road South,
Nepean, Ontario.
K2E 7K3

MODEL NAME:

amc CD-1

DETECTION METHOD:

Non-dispersive infrared absorption

MODEL DESCRIPTION:

This monitor features a diffusion-type sample chamber and pulsing IR beams to determine the Carbon Dioxide concentration in air. The detection range is 0-5000 ppm CO_2 with an error of less than 3% of full scale. A built-in sampling pump supplies approx. 1 litre/min of air. The operating temperature range is 0C to 50C. There is a 0-1V recorder output for use with an external chart recorder. The built-in rechargeable battery pack supplies 12 hours of continuous use per charge.

UNIT SIZE: **21 x 24 x 9.5 cm**

UNIT WEIGHT: **2.0 kg**

UNIT COST: **$2500.**

MANUFACTURER:

Armstrong Monitoring Corporation
215 Colonnade Road South,
Nepean, Ontario.
K2E 7K3

MODEL NAME:

amc-3000 series

DETECTION METHOD:

Electrochemical Cell and Pellistor Type Sensor

MODEL DESCRIPTION:

These instruments provide simultaneous monitoring using up to 3 sensor modules. A built-in aspirator pump supplies a continuous flow to all sensors. The 3003 model contains modules for oxygen, Combustibles, and Toxics (calibrated to CO or H_2S). Other models, 3002 and 3001, have two modules and one module respectively. Each module has it's own analog meter and audible/visual alarm point indicators. The operating temperature range is 0C to 40C. The ranges for each module are as follows:

Oxygen - 15-21%/vol
Combustibles - 0-100% LEL
Carbon Monoxide - 0-400 ppm
Hydrogen Sulfide - 0-20 ppm

The 12V rechargeable gel cell battery will supply approximately 8 hours of use.

UNIT SIZE: 7.0 x 14.0 x 19 cm

UNIT WEIGHT: 1.6 kg

UNIT COST: $1500.

MANUFACTURER:

Bacharach, Inc.
625 Alpha Drive,
Pittsburgh, PA. 15238
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Sniffer 300 Series

DETECTION METHOD:

Catalytic Combustion-type Sensor + Electrochemical Cell (for O_2)

MODEL DESCRIPTION:

These instruments are combustible gas detectors calibrated to methane in air. The features vary between the four models.

The model 300 measures 0-100% combustibles on an analog meter. A manual bulb aspirator is used for sampling. Four dry cell D batteries will power the unit for up to 16 hours.

The model 301 similar to the 300 with the advantage of a sampling pump and a digital meter. The batteries will last up to 14 hours of normal use.

The 302 model has an additional sensor for oxygen measurement on a 0-25% scale (0.1% error) . This model has the same combustible gas features as the model 301, including the internal pump and LCD digital display. It uses a rechargeable battery pack for up to 14 hours of use.

The model 303 is similar to the 301, but the LCD displays combustible gas concentration in the range of 0-2000 ppm, with an error of less than 10 ppm. The alarm is audible as well as visual. This unit can be calibrated to any combustible gas or combustible gas mixture for specific usage.

All models have a remote probe which reaches 25 feet at maximum extension. They will respond within 30 seconds when using the 42 inch hose. All alarms are visual only except where noted.

UNIT SIZE: 8.1 x 18 x 26.2 cm

UNIT WEIGHT:		
	300	1.1 kg
	301	1.2 kg
	302	1.8 kg
	303	1.2 kg

UNIT COST:		
	300	$ 900.
	301	$ 1083.
	302	$ 1658.
	303	$ 1592.

MANUFACTURER:

Bacharach, Inc.
625 Alpha Drive,
Pittsburgh, PA. 15238
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Sniffer 500 Series

DETECTION METHOD:

Catalytic Bead Sensor + Electrochemical Cell

MODEL DESCRIPTION:

These multi-function meters provide continuous monitoring of up to three gases on two analog meters. All three models measure the oxygen level (0-25% range) and the amount of combustible gas (0-100% LEL). The Sniffer 505 also monitors Hydrogen Sulfide in the 0-100 ppm range. The 506 model has the capability to monitor Carbon Monoxide in the 0-500 ppm range. The audible and visible alarms can be adjusted by the user. Each alarm is distinct in identifying the gas which is at the danger level. The sampling pump is built-in with an internal flowmeter and low-flow alarm. The power is supplied by a 6 V lead-acid battery which can supply 10 hours of use or it can be substituted by a 12 V DC supply (cigarette lighter) or an AC line source. Each unit comes with an AC battery charger. A remote sensor can be placed up to 100 feet away from the unit and an optional remote alarm can be placed up to 25 feet away. The response time for oxygen and combustible gas levels is within five seconds, while other gases will be detected within 1 minute (for 15 foot hose).

UNIT SIZE: 19.3 x 25.4 x 16 cm

UNIT WEIGHT: approximately 4 kg.

UNIT COST: Model 503 - $ 2391.
Model 505 - $ 3166.
Model 506 - $ 3166.

MANUFACTURER:

CEA Instruments, Inc.
16 Chestnut Street,
P.O. Box 303,
Emerson, NJ. 07630-0303
USA

DISTRIBUTOR:

Aquatronix Inc.
70 Gibson Dr.,Unit 8
Markham, Ontario.
L3R 4C2

MODEL NAME:

Riken Series 7 Toxic Gas Monitors

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

This group of instruments each is set up for a single toxic gas. The LCD screen gives continuous readings of gas concentration or displays peak, interval averages, or battery condition on command. The audio and visual alarm system is preset to alert the user to dangerous conditions. Each unit operates on 6 C cells (dry cell or rechargeable) or AC power.

The series consists of the following instruments:

Model	Gas Detected	Range(ppm)	Error(ppm)
AS-7	Arsine (A_5H_3)	0-1.0	0.05
BH-7	Diborane (B_2H_6)	0-30	0.5
CO-7	Carbon Monoxide(CO)	0-500	5.0
CL-7	Chlorine (Cl_2)	0-3.0	0.05
HL-7	Hydrogen Chloride(HCl)	0-15	0.5
HS-7	Hydrogen Sulfide (H_2S)	0-100	0.1
NO-7	Nitric Oxide (NO)	0-100	1.0
ND-7	Nitrogen Dioxide (NO_2)	0-15	0.5
PH-7	Phosphine (PH_3)	0-1.0	0.05
SH-7	Silane (SiH_4)	0-15	0.5
SO-7	Sulfur Dioxide (SO_2)	0-15	0.5

UNIT SIZE: 17.7 x 16.5 x 8.8 cm

UNIT WEIGHT: 2.27 kg

UNIT COST: $4,000.

MANUFACTURER:

CEA Instruments, Inc.
16 Chestnut Street,
P.O. Box 303,
Emerson, NJ. 07630-0303
USA

DISTRIBUTOR:

Aquatronix Inc.
70 Gibson Dr.,Unit 8
Markham, Ontario.
L3R 4C2

MODEL NAME:

Riken RI-411 CO_2 Indicator

DETECTION METHOD:

Non-dispersive infrared absorption

MODEL DESCRIPTION:

This instrument monitors continuous and average measurements of Carbon Dioxide concentration. The dot-matrix digital display responds within 10 seconds with concentrations of CO_2 from zero to 9950 ppm, accurate to within 2 %. The pre-set audible alarm indicates concentrations in the danger range. The average concentration can be computed over 1, 3, or 15 minutes. An internal sampling pump runs continuously while ON. An external jack for recorder hook-up is built-in. The unit is powered by 6 D cell rechargeable batteries which will allow up to 6 hours of continuous use, or an AC adaptor can be used.

UNIT SIZE: 25.5 x 19 x 11.3 cm

UNIT WEIGHT: 2.72 kg

UNIT COST: $4,800.

MANUFACTURER:

CEA Instruments, Inc.
16 Chestnut Street,
P.O. Box 303,
Emerson, NJ. 07630-0303
USA

DISTRIBUTOR:

Aquatronix Inc.
70 Gibson Dr.,Unit 8
Markham, Ontario.
L3R 4C2

MODEL NAME:

TGM 555

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This automatic colorimetric testing system is packaged in a briefcase-size self-contained unit. All of the sampling procedures are automatic. An air sample is continuously drawn into the unit and scrubbed with an absorbing reagent which isolates the pollutant. The reagent is then pumped through to retrieve the pollutant and transfer it to a colorimetric cell. The reference cell is simultaneously set up. The information from the dual-beam colorimeter is processed and displayed as a concentration on the digital readout. A recorder output is also provided. The instrument is powered by a 12 V rechargeable battery pack for up to 12 hours or by an AC line.

The TGM 555 can analyze for one contaminant at a time. To analyze for a different contaminant, the contaminant-specific reagents, and in some cases the analytical module tray (containing absorption coil, separator, and scrubber), must be changed. The lag time on a changeover would be approximately 5 minutes for accurate results. Normal lag times for any gas introduced to the air intake is 3 minutes to readout, with an error of 1 % of full scale. Ranges for each gas can be reduced from full scale using the span control feature. The gases which are now detectable are:

Gas Detected	Min. Range(ppm)	Max. Range(ppm)
Ammonia (NH_3)	0-1.0	0-50
Chlorine (Cl_2)	0-0.25	0-5
Formaldehyde (HCHO)	0-0.25	0-10
Hydrazine (N_2H_4)	0-2.5	0-20
Hydrogen Chloride (HCl)	0-0.5	0-100
Hydrogen Cyanide (HCN)	0-0.25	0-1.0
Hydrogen Fluoride (HF)	0-1.0	0-10
Hydrogen Peroxide (H_2O_2)	0-0.25	0-10
Hydrogen Sulfide (H_2S)	0-0.25	0-10

Mercaptans (RSH)	0-1.0	0-20
Nitrogen Dioxide (NO_2)	0-0.25	0-10
Oxides of Nitrogen (NOx)	0-0.25	0-10
Phenol (C_6H_5OH)	0-0.1	0-10
Phosgene ($COCl_2$)	0-0.25	0-5.0
Sulfur Dioxide (SO_2)	0-0.25	0-10
Total Oxidants (TOx)	0-0.25	0-5.0

UNIT SIZE: 51 x 40.5 x 17.7 cm

UNIT WEIGHT: 13.6 kg

UNIT COST: $12,000.

MANUFACTURER:

CHEMetrics, Inc.
Route 28,
Calverton, VA. 22016
USA

DISTRIBUTOR:

Chemonics Scientific Ltd.
2020R-32nd Ave. N.E.,
Calgary, Alberta.
T2E 6T4

MODEL NAME:

System 1000, model #1050

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

The model A-1050 is a single beam, direct-reading, multi-filter photometer with an analog display. There are 6 interchangeable filters available for 18 specific contaminants. Colourimetric reactions take place within the sample vial which fits directly into the photometer (13 mm cell holder). May be powered by 4 AA batteries for 8 hours or adapted to AC power.

Capabilities include:

Ammonia	0-7 mg/L	Iron	0-5 mg/L
Chlorine	0-3	Nitrate	0-1.8
Chromate	0-4	Nitrite	0-0.7
Copper	0-6	Oxygen	0-2
Cyanide	0-0.4	Phenol	0-9
Formaldehyde	0-7	Phosphate	0-4
Glycol	0-40	Silica	0-10
Hydrazine	0-0.7	Sulfide	0-16
Hyd. Peroxide	0-1.5	Zinc	0-3

UNIT SIZE: 40 x 24 x 7.5 cm in carrying case

UNIT WEIGHT: 1.8 kg

UNIT COST: $ 829.50 - includes photometer, 1 filter and 1 reagent package.

MANUFACTURER:

CHEMetrics, Inc.
Route 28,
Calverton, VA. 22016
USA

DISTRIBUTOR:

Chemonics Scientific Ltd.
2020R-32nd Ave. N.E.,
Calgary, Alberta.
T2E 6T4

MODEL NAME:

Quanti-Chlor Chlorine test

DETECTION METHOD:

Titrimetric

MODEL DESCRIPTION:

This test is designed for testing total chlorine levels in petroleum-based products. Organic chlorine is first converted to sodium chloride, extracted, and quantified using mercuric nitrate as the titrant. The reagent amounts are pre-packaged and all accessories are packaged neatly in a single box. The suggested range for the kit is 750 - 7000 ppm and results are achieved in under five minutes.

UNIT SIZE: 20 x 7.5 x 2 cm

UNIT WEIGHT: n/a

UNIT COST: $ 210 for 12 kits

MANUFACTURER:

Chemtronics Ltd.
Unit 2, Node 250 Technology Park,
Brodie Hall Drive, Bentley.
Western Australia
6102

DISTRIBUTOR:

SCP Science
2367 Guenette,
St-Laurent, Quebec.
H4R 2E9

MODEL NAME:

PDV 2000

DETECTION METHOD:

Anodic Stripping Voltammetry

MODEL DESCRIPTION:

This instrument is designed for trace metals analysis. The metals are plated to the anode of the instrument when a strong negative voltage is applied. The reverse process is then performed in a controlled manner. As the voltage increases, the re-oxidation of the plated metals generates a small but measurable current. Each metal oxidizes at a unique voltage. This instrument is programmed to automatically plate and strip the trace metals. The built-in 8085 microprocessor also determines which metals are found by comparing voltages to standard values and how much of each metal is present by the amount of current generated.

The information is recorded and assigned a run number. This information for all peaks is printed on a built-in dot matrix printer. Up to four peaks are detailed on the LCD screen for any given run. The information can be transferred via the RS232C port to a computer for a full curve plot.

The optimum sensitivity is achieved for a 1 minute plating. The sweep time setting for stripping is variable. Specific applications require electrode preparations and also electrolyte preparations. For best results, an appropriate standard would be required for each application.

Some of the elements which can be determined are described below.

Element	Detection Range	Error
Arsenic	10 - 4000 ppb	5 %
Cadmium	1 - 2000 ppb	2 %
Lead	1 - 2000 ppb	2 %
Mercury	30 - 6000 ppb	5 %
Zinc	1 - 2000 ppb	2 %

Higher ranges can be obtained through dilutions. This instrument

can do water samples and soil samples by using acid dissolution. The power is supplied by an internal 24V battery or externally by AC mains or generator.

UNIT SIZE: 27.8 x 20 x 35.5 cm

UNIT WEIGHT: 12 kg

UNIT COST: PDV 2000 and basic reagent package - approx. $14000

Optional accessories package (IBM software, specialized reagents and standards) - $10000

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Series 4000 Portable Toxic Gas Detectors

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

Each unit in this series of instruments is designed to monitor a single gas. The analog meter can be used for either of two concentration ranges. An internal pump maintains a constant flow of ambient air through the sensor. The response of the sensor to measurable concentrations of contaminant gas is 20 seconds to 90% of final reading, except ethylene oxide which is 100 seconds. There is some cross sensitivity between various gases, but when there is a single known contaminant this is not a factor. The audible/visual alarm can be set and adjusted by the user. On the front panel, the operating controls consist of only a HI/LO range switch, a function control knob, and a zero adjust knob. The is an output jack for a 0-100 mV recorder. The power is supplied by two sets of batteries. A set of four NiCad rechargeable batteries provide power for the alarms and pump for 8-9 hours per charge. Also, 2 alkaline batteries are used for continuous operation of the sensor (4 to 6 weeks of use per set).

The various models in this series are described below:

MODEL	GAS DETECTED	LO-RANGE	HI-RANGE
4000-CO/10/50	Carbon Monoxide	0-10 ppm	0-50 ppm
-CO/100/500	Carbon Monoxide	0-100	0-500
-CO/1000/3000	Carbon Monoxide	0-1000	0-3000
-HS/1/10	Hydrogen Sulfide	0-1	0-10
-HS/10/100	Hydrogen Sulfide	0-10	0-100
-SO/2/10	Sulfur Dioxide	0-2	0-10
-SO/10/50	Sulfur Dioxide	0-10	0-50
-CL/2/10	Chlorine	0-2	0-10
-HCL/2/10	Hydrogen Chloride	0-2	0-10
-HCL/10/50	Hydrogen Chloride	0-10	0-50
-NO/10/100	Nitric Oxide	0-10	0-100
-NO/100/500	Nitric Oxide	0-100	0-500
-ND/2/10	Nitrogen Dioxide	0-2	0-10
-ND/10/50	Nitrogen Dioxide	0-10	0-50

-HN/2/10	Hydrogen Cyanide	0-2	0-10
-HN/10/50	Hydrogen Cyanide	0-10	0-50
-HZ/.5/2	Hydrazine	0-0.5	0-2
-HZ/2/10	Hydrazine	0-2	0-10
-EO/2/10	Ethylene Oxide	0-2	0-10
-EO/10/50	Ethylene Oxide	0-10	0-50
-FM/1/5	Formaldehyde	0-1	0-5
-FM/2/10	Formaldehyde	0-2	0-10

UNIT SIZE: 20 cm x 10.6 cm x 21 cm

UNIT WEIGHT: 3.4 kg

UNIT COST: $ 4545 - 8945 - includes battery charger and carrying case.

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Toximeter 88TX/Oximeter 88OX

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

Each unit in this series of instruments is designed to monitor a single gas. An LCD screen shows concentration of the gas continuously. The audible/visual alarms are pre-set. The sensitivity of the Oxygen monitor is within 0.2% by volume; other monitors measure within 1 ppm. The operating temperature range is -10C to +45C. The power is supplied by either a disposable battery for up to 600 hours of use or a rechargeable NiCad battery for up to 150 hours of service.

The various models in this series are described below:

MODEL	GAS DETECTED	RANGE	RESPONSE TIME (to 90%)
88OX	Oxygen	0-99%	7 s
88TX/CO	Carbon Monoxide	0-300 ppm	20 s
88TX/HS	Hydrogen Sulfide	0-100 ppm	30 s
88TX/SO	Sulfur Dioxide	0-10 ppm	30 s
88TX/CL	Chlorine	0-10 ppm	60 s
88TX/ND	Nitrogen Dioxide	na	na
88TX/HN	Hydrogen Cyanide	na	na

UNIT SIZE: 13.0 cm x 6.3 cm x 2.8 cm

UNIT WEIGHT: 210 g

UNIT COST: $ 1000 - 1500 range - includes battery and carrying case.

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Gasalarm Type 84GA

DETECTION METHOD:

Pellistor-type sensor

MODEL DESCRIPTION:

The workings of this instrument follows those detailed in the 84TR, the exception being that this is a combustible gas monitor only. The analog meter can be calibrated to 0-100% LEL of methane or pentane (other saturated hydrocarbons if desired). The audible/visible alarm can be user-adjusted. The operating temperature range is -10C to +40C. The rechargeable battery provides 12 hours of continuous use. As with the 84TR, the aspirator pump can be used for faster response and an extension probe is optional.

UNIT SIZE: **18.5 cm x 9.5 cm x 14 cm**

UNIT WEIGHT: **2.1 kg**

UNIT COST: **$ 1315 - includes battery pack and charger, aspirator, and carrying case.**

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Gascheck (74GC)

DETECTION METHOD:

Pellistor-type sensor

MODEL DESCRIPTION:

This instrument measures the level of combustible gases in the air. The analog meter reads 0-100% LEL and can be calibrated to methane, pentane, or a number of other combustible gases. The manually operated aspirator pump delivers a flow of 1 Litre of air per minute when pumping at a rate of once per second. The operating temperature range is -5C to +40C. The 6V battery delivers power for up to 2000 intermittent tests or 6 hours of continuous use. A steel extension probe is available for use with the aspirator pump.

UNIT SIZE: 14.0 cm x 13.6 cm x 7.3 cm

UNIT WEIGHT: 2.25 kg

UNIT COST: $ 740 - includes battery, aspirator, and carrying case.

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Oxytone (850X)

DETECTION METHOD:

Electrochemical cell

MODEL DESCRIPTION:

This compact meter monitors the oxygen level in air. The analog scale reads in the 0-25% by volume range. Alarms are triggered if either the upper or lower safety limit is breached. The monitor can be used as a continuous monitor with a response time of not more than 10 seconds to 90% of reading. For faster response, there is a manual aspirator pump coupled with two metres of hose. The operating temperature range is -10C to +40C. The power is a supplied by a single 9V battery for 40 hours of continuous use.

UNIT SIZE: 12 cm x 8.8 cm x 5.5 cm

UNIT WEIGHT: 0.5 kg

UNIT COST: $ 940 - includes battery, aspirator, and carrying case.

MANUFACTURER:

Crowcon Instruments Ltd.,
2 Blacklands Way, Abington Bus. Pk.,
Abington, Oxfordshire.
OX141DY, UK.

DISTRIBUTOR:

Nortech Control Equipment
135 - 4, The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Triple Type 84TR or CO84TR

DETECTION METHOD:

Pellistor-type sensor, Electrochemical cells

MODEL DESCRIPTION:

This instrument simultaneously monitors three gas hazards. The flammable gas detector can be calibrated to any saturated hydrocarbon and measures 0-100% LEL. The oxygen sensor measures in the range of 0-25% by volume. The third sensor is optional - 0-25 ppm H_2S in model 84TR or 0-200 ppm CO in model CO84TR. The front panel has a 3-digit LCD screen and a single control knob which can be turned to display the gas concentration of choice.

Once the instrument is switched on, it will continuously monitor the ambient air for all three gas hazards for 12 hours or more. The audible/visible alarms will be triggered if the pre-set alarm levels are exceeded, regardless of whether that gas concentration is currently being displayed. For use in high hazard areas, the manual aspirator should be used to provide faster response to gas hazards. An optional 1m extension probe is available for probing difficult locations.

The instrument has an operating temperature range of -10C to +40C. The power is supplied by a sealed NiCad rechargeable battery for 12 hours of continuous use.

UNIT SIZE: 18.5 cm x 9.5 cm x 15.5 cm

UNIT WEIGHT: 2.5 kg

UNIT COST: $ 1915 - includes battery pack and charger, aspirator, and carrying case.

MANUFACTURER:

Dynamation, Inc.
3784 Plaza Drive,
Ann Arbor, MI. 48108
USA

DISTRIBUTOR:

Analygas Systems, Ltd.
215 Nantucket Blvd.,
Scarborough, Ontario.
M1P 2P2

MODEL NAME:

Monogard 100 Series

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

These pocket-portable instruments are calibrated to a single gas. The level is continuously displayed on a LCD screen. An audio/visual alarm alerts the user to the presence of unsafe concentration levels of the hazardous gas with a typical response time being less than 30 seconds. The operating temperature range for these instruments is -7C to +40C. Power for each unit is supplied by a single 9 V battery which will provide approximately 50 hours of use.

The models available in this series are:

MODEL	GAS DETECTED	RANGE	ERROR
101	Oxygen	0 - 100% vol.	0.5% vol.
103	Hydrogen Sulfide	0 - 50 ppm	1 ppm
104	Carbon Monoxide	0 - 500 ppm	3 ppm
106	Nitrogen Dioxide	0 - 100 ppm	0.5 ppm
107	Sulfur Dioxide	0 - 100 ppm	0.5 ppm
108	Chlorine	0 - 20 ppm	0.2 ppm

UNIT SIZE: 11.5 cm x 7 cm x 3 cm

UNIT WEIGHT: 170 g

UNIT COST: $ 850.

MANUFACTURER:

Dynamation, Inc.
3784 Plaza Drive,
Ann Arbor, MI. 48108
USA

DISTRIBUTOR:

Analygas Systems, Ltd.
215 Nantucket Blvd.,
Scarborough, Ontario.
M1P 2P2

MODEL NAME:

Combo 434

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This instrument simultaneously displays levels of combustible gases, oxygen, carbon monoxide, and hydrogen sulfide by strips of LED lights. The lights display the gas level in steps and do not therefore show precise levels. Alarm levels for all monitored gases are factory pre-set but are user-adjustable. Each sensor is removable to enable remote sensing capabilities. Rechargeable batteries are included with the unit for at least 10 hours of use per charge.

UNIT SIZE: 15 cm x 25 cm x 10 cm

UNIT WEIGHT: n/a

UNIT COST: $ 1395.

MANUFACTURER:

Dynamation, Inc.
3784 Plaza Drive,
Ann Arbor, MI. 48108
USA

DISTRIBUTOR:

Analygas Systems, Ltd.
215 Nantucket Blvd.,
Scarborough, Ontario.
M1P 2P2

MODEL NAME:

Combo 444

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This instrument simultaneously displays levels of combustible gases, oxygen, and hazardous gases on a high visibility, large digit LCD screen. An additional feature is the TOX-ALERT level which monitors levels of unidentified gases on a scale of 0 to 9. Alarm levels for all monitored gases are factory pre-set but are user-adjustable. A data recall function will display peak and time-weighted average values for review of monitored gas levels. Rechargeable batteries are included with the unit. The hazardous gas detector can be selected from an H_2S, CO, SO_2, Cl_2, or combined H_2S/CO sensor. The range and accuracy of the sensors are shown below:

MODEL	GAS DETECTED	RANGE	ERROR	ALARM POINT (Adjustable)
444 Standard	Combustible	0-100% LEL	1% LEL	20% LEL
	Oxygen	0-25%	0.1%	LOW- 19.5% HIGH- 22.5%
	Toxic Vapours	0-9 Units	1 Unit	5 Units
Standard	H_2S/CO (= CO)	0-200 ppm (0-999 ppm)	1 ppm	50 ppm (200 ppm)
<u>Alternate Sensors</u> -				
444-3	Hydrogen Sulfide	0-100 ppm	1 ppm	10 ppm
444-4	Carbon Monoxide	0-999 ppm	1 ppm	200 ppm
444-7	Sulfur Dioxide	1-100 ppm	1 ppm	10 ppm
444-8	Chlorine	0-20 ppm	1 ppm	5 ppm

UNIT SIZE: 22 cm x 25 cm x 11 cm

UNIT WEIGHT: n/a

UNIT COST: $ 2088.

MANUFACTURER:

Dynamation, Inc.
3784 Plaza Drive,
Ann Arbor, MI. 48108
USA

DISTRIBUTOR:

Analygas Systems, Ltd.
215 Nantucket Blvd.,
Scarborough, Ontario.
M1P 2P2

MODEL NAME:

Combo II

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This instrument monitors levels of combustible gases and oxygen. The LCD screen displays the selected gas level. Audio/visual alarms are factory preset at 20% LEL and 19.5% vol Oxygen. A 20' probe can be attached for remote sensing. The power is supplied by either dry or rechargeable batteries.

UNIT SIZE: 14 cm x 20 cm x 10 cm

UNIT WEIGHT: n/a

UNIT COST: $ 1297.

MANUFACTURER:

Ecolyzer
National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Ecolyzer 100 Series

DETECTION METHOD:

Electrochemical Sensor

MODEL DESCRIPTION:

This trio of hand-held instruments perform quick analyses of either oxygen, carbon monoxide, or hydrogen sulfide levels in air. Audio/visual alarms are factory pre-set but variable by the user. The large LCD display is built into the oxygen monitor but must be added (as an option) to the other monitors to be able to detect gases quantitatively. The capabilities of the different models in the 100 Series are outlined below:

GAS	RANGE	ERROR	RESPONSE	PRICE
Carbon Monoxide	0 - 2000 ppm	3%	< 20 s	$ 663.
Hydrogen Sulfide	0 - 200 ppm	2 ppm	< 20 s	$ 663.
Oxygen	0 - 30% vol	0.5%	10 s	$ 900.

UNIT SIZE: 9 cm x 5 cm x 2.5 cm

UNIT WEIGHT: 140 g

UNIT COST: See above

MANUFACTURER:

Ecolyzer
National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Ecolyzer 2000 Series

DETECTION METHOD:

Electrochemical Sensor

MODEL DESCRIPTION:

These dual-scale monitors provide analysis of gas samples, monitoring constantly for either Carbon Monoxide, Hydrogen Sulfide, Nitric Oxide, Nitrogen Dioxide, or Sulfur Dioxide. With very little interference from other gases, these monitors can detect very low levels of these hazardous gases. An internal pump can be adjusted manually and kept in check by a built-in flow meter. The analog meter can be switched to either of two scales for high or low concentrations. A 0-1 V output will drive an optional strip recorder for documentation of data. The operating temperature range is 0C to 40C. The power is derived from an internal rechargeable nickel-cadmium battery or an external AC source.

GAS	RANGE	ERROR	RESPONSE TIME
Carbon Monoxide	0-50, 0-100 ppm	1% of F.S.	25 s
or	0-100, 0-600 ppm		
Hydrogen Sulfide	0-50, 0-250 ppm	1% of F.S.	30 s
Nitric Oxide	0-10, 0-50 ppm	1% of F.S.	10 s
Nitrogen Dioxide	0-2, 0-10 ppm	1% of F.S.	30 s
Sulfur Dioxide	0-2, 0-10 ppm	1.5% of F.S.	30 s

UNIT SIZE: 17.8 cm x 17.8 cm x 32.0 cm

UNIT WEIGHT: 4.5 kg

UNIT COST: n/a

MANUFACTURER:

Ecolyzer
National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Ecolyzer 60-400 Combustible Gas/Oxygen Monitor

DETECTION METHOD:

Oxygen Sensor - Polarographic
Gas Detector - Catalytic Oxidation

MODEL DESCRIPTION:

This instrument is designed for confined spaces monitoring of oxygen and methane (combustibles) levels. The probe is mounted on a 4.5 meter cable with optional 4.5 and 15 meter extensions. The oxygen and methane are measured simultaneously and the level is displayed on two analog meters. Basic calibration is required each time the unit is turned on. The 9.6 Volt battery pack will supply power for up to 10 hours of continuous operation. Alternately, the unit will run on a direct AC line or an external 12 V DC vehicle cigarette lighter.

Visual and audio warning alarms (variable) will be activated if preset levels are exceeded. The sensors will operate in a temperature range of -18C to +49C with an accuracy of +/- 1% of full scale and a response time of 15 seconds. The Methane scale is 0 - 100% LEL and the oxygen measures 0 - 30% by volume.

UNIT SIZE: approx. 30 cm x 30 cm x 10 cm

UNIT WEIGHT: 3.6 kg

UNIT COST: $ 2663.

MANUFACTURER:

Ecolyzer
National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Ecolyzer 200 Series

DETECTION METHOD:

Electrochemical Sensor

MODEL DESCRIPTION:

These lightweight instruments perform quick analyses of either oxygen, carbon monoxide, or hydrogen sulfide levels in air. The visual alarms (three scaled LED indicators) and the audio alarms are factory pre-set but variable by the user. The LCD display can be activated for instantaneous or continuous use. The power is supplied by a single 9 V battery for 36 days of service. These instruments will operate in a temperature range of 0C to 40C. The capabilities of the different models in the 200 Series are outlined below:

GAS	RANGE	ERROR	RESPONSE	PRICE
Carbon Monoxide	0 - 1999 ppm	2 ppm or 2%	60 s	$ 1256.
Hydrogen Sulfide	0 - 1000 ppm	3 ppm or 5%	90 s	$ 1256.
Oxygen	0 - 30% vol	0.5%	10 s	$ 1219.

UNIT SIZE: 14.5 cm x 8.5 cm x 3.8 cm

UNIT WEIGHT: 350 g

UNIT COST: n/a

MANUFACTURER:

ENMET Canada Ltd.
#100-2600 Edenhurst Dr.,
Mississauga, Ont.
L5A 3Z8

MODEL NAME:

Toxic Gas Detector Kit

DETECTION METHOD:

Colorimetric Detector Tubes

MODEL DESCRIPTION:

This sampling kit includes a piston-type 100 cc sampling pump and accessories contained in a compact carrying case. Over 100 different toxic gas and vapour detector tubes are available in packages of 10. The concentration of the specific gas is read directly from the disposable detector tubes.

UNIT SIZE: **n/a**

UNIT WEIGHT: **n/a**

UNIT COST: **Variable**

MANUFACTURER:

ENMET Canada Ltd.
#100-2600 Edenhurst Dr.,
Mississauga, Ont.
L5A 3Z8

MODEL NAME:

Quad-400

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This 4-in-1 monitor uses 3 chemically specific sensors in combination with a combustible gas sensor to alert the user of dangerous conditions. As well as giving constant readout of ppm concentrations of Oxygen, Hydrogen Sulphide, Carbon Monoxide, and combustible gases, each sensor is connected to audio and visual alarms preset to danger concentrations. All four of the LCD screens can be read simultaneously. The battery pack is rechargeable.

UNIT SIZE: 5 x 12.5 x 15 cm

UNIT WEIGHT: 1.8 kg

UNIT COST: $ 2895.

MANUFACTURER:

ENMET Canada Ltd.
#100-2600 Edenhurst Dr.,
Mississauga, Ont.
L5A 3Z8

MODEL NAME:

Tritector CGS-100SP

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

Two MOS sensors continuously monitor toxic and combustible gases, while oxygen is monitored by a micro fuel cell. The oxygen concentration is displayed numerically as a percentage on a digital LC display. The toxic gas sensor can be calibrated for different gases, such as Methyl Chloride (typical of solvents and hydrocarbons) or a Hydrogen Sulphide/Carbon Monoxide mixture. This concentration of the calibrated gas is displayed on an LCD bar graph in ppm. The combustible gas sensor is calibrated to methane or propane and is also displayed in LCD bar graph form in percent of the LEL. Each function has it's own pre-set alarm level which triggers both audio and visual alarms when the limit is exceeded. The response times are less than 5 seconds for the oxygen sensor and 70 seconds or less for the MOS sensors. The unit is powered by an 8V rechargeable battery pack which supplies up to 12 hours of service. A low battery warning light flashes when the batteries are low.

This model has a remote sensor and built-in sampling pump for field use. It comes with carrying case and charger included.

UNIT SIZE: 20 x 6 x 30 cm

UNIT WEIGHT: 2.9 kg

UNIT COST: $ 3775.

MANUFACTURER:

ENMET Canada Ltd.
#100-2600 Edenhurst Dr.,
Mississauga, Ont.
L5A 3Z8

MODEL NAME:

Tritector CGS-20M

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This model detects gases (toxic, combustible, and oxygen) in the same way as the CGS-100. This unit, however has an analog meter for the concentrations of the gases and can only display one of the three levels at any time. This deficiency allows this model to be much smaller. A 2V rechargeable battery for the sensor and a 9V rechargeable battery for the electronics are required to power each unit. Each unit comes with a leather case, charger and manual.

UNIT SIZE: 14 x 9.5 x 5.7 cm

UNIT WEIGHT: 1.13 kg

UNIT COST: $ 1435.

MANUFACTURER:

ENMET Canada Ltd.
#100-2600 Edenhurst Dr.,
Mississauga, Ont.
L5A 3Z8

MODEL NAME:

Tritector CGS-80R

DETECTION METHOD:

Electrochemical Sensors

MODEL DESCRIPTION:

This model detects gases in the same way as the CGS-100. A remote sensor on a 20 foot cable is permanently attached. While the percent oxygen is displayed constantly on the LCD display, the LCD bar graph can only respond to either the toxic gas sensor or the combustible gas sensor, but not both at once. A rechargeable 8V battery pack, which is included, will provide power for up to 12 hours. The response times for the sensors are the same as with the CGS-100. Each kit comes with case, charger, and manual.

UNIT SIZE: **22.8 x 11.4 x 5.7 cm**

UNIT WEIGHT: **2.75 kg**

UNIT COST: **$ 1975.**

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Miran 101 Specific Vapour Analyzer

DETECTION METHOD:

Infra-Red Spectrometer

MODEL DESCRIPTION:

The Miran 101 is calibrated to analyze air samples for a specific gas or vapour. A built-in sampling pump and 1.5 m hose provide a steady flow of ambient air through the instrument. The concentration is read on a dual-range (high/low) analog meter in ppm or percent by volume. A single wavelength source provides the infra-red light. A series of lenses and mirrors are set to maintain the ideal path length for the beam. The detector measures the amount of light received. Then, from the detector reading, the amount of light which has been absorbed by the specific gas is determined. A built-in rechargeable battery or, alternatively, 115 V AC will supply the required power.

A 0-1 V recorder output is standard. This enables the hook-up of optional chart recorder or Foxboro Datalogger for storage of results.

UNIT SIZE: 53 cm x 20 cm x 17 cm plus hose

UNIT WEIGHT: 8.2 kg

UNIT COST: $ 6750.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Miran 103 Specific Vapour Analyzer

DETECTION METHOD:

Infra-Red Spectrometer

MODEL DESCRIPTION:

The Miran 103 is calibrated to analyze air samples for a number of specific gases. Interchangeable filters and corresponding meterscale overlays are provided for different gases. A built-in sampling pump and 3 m hose provide a steady flow of ambient air through the instrument. The concentration is read on a dual-range (high/low) analog meter in ppm or percent by volume. A series of lenses and mirrors set the path length of the beam at 13.5 m. The detector measures the amount of light received. Then, from the detector reading, the amount of light which has been absorbed by the specific gas is determined. An AC/DC converter is available for use with a battery pack (115 V AC is standard).

A 0-1 V recorder output is standard. This enables the hook-up of optional chart recorder or Foxboro Datalogger for storage of results. There are over 100 gases identifiable by this instrument. Some of these are listed with the Miran 1B heading.

UNIT SIZE: 75 cm x 27 cm x 17 cm

UNIT WEIGHT: 10.4 kg

UNIT COST: $ 11250.

for additional filter/meterscale packages - $ 595.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Miran 1A General-Purpose Gas Analyzer

DETECTION METHOD:

Infra-Red Spectrometer

MODEL DESCRIPTION:

The Miran 1A contains a number of built-in filters which cover the infra-red range from 2.5 to 14.5 micrometres. The instrument can be used for instantaneous sampling or continuous monitoring with a built-in pump for easy sampling. The concentration is read on a dual-range (high/low) analog meter in ppm or percent by volume. A variable pathlength gas cell enables the user to obtain the ideal pathlength for the response situation. An AC/DC converter is available for use with a battery pack (115 V AC is standard). The power draw is 25 Watts. A 0-1 V recorder output is standard. This enables the hook-up of optional chart recorder or Foxboro Datalogger for storage of results. There are over 100 gases identifiable by this instrument. Some of these are listed with the Miran 1B heading.

UNIT SIZE: 100 cm x 27 cm x 19 cm

UNIT WEIGHT: 14 kg

UNIT COST: $ 16900.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Miran 1B Portable Ambient Air Analyzers

DETECTION METHOD:

Infra-Red Spectrometer

MODEL DESCRIPTION:

These are the most advanced of the Miran portable instruments. The Miran 1B2 and 1BX are virtually the same in capabilities, the difference being the 1BX is designed for (and approved for) use in hazardous areas. The internal library contains set-up information for over 100 gases. The set-up is done automatically by an internal microprocessor when the code for the specific gas is entered. The microprocessor is controlled by a touch sensitive alpha-numeric keyboard. The readout is given on a LCD 40-character display. A 0-10 V recorder output is standard. This enables the hook-up of optional chart recorder or Foxboro Datalogger for storage of results. The operating temperature range is 5C to 40C. Within this range, an error of less than 15% is expected. A built-in pump supplies 25 to 30 L/min of gas to the sample chamber.

The power is supplied by rechargeable battery packs or direct AC line. The internal battery pack supplies power for 1 hour of use; the recommended external pack will last 4 hours. External battery pack is optional, but recharger and carrying case are included.

Some of the pre-calibrated compounds in the Miran 1B library are:

GAS	RANGE
Acetaldehyde	0 - 400 ppm
Acetone	0 - 2000 ppm
Acetonitrile	0 - 200 ppm
Butadiene	0 - 2000 ppm
Butane	0 - 200 ppm
n-Butyl Alcohol	0 - 200 ppm
Carbon Disulfide	0 - 50 ppm
Carbon Tetrachloride	0 - 20 ppm
Freon 22	0 - 1000 ppm
Cyclohexane	0 - 500 ppm

Freon 12	0 - 5 and 0 - 800 ppm
Dimethylformamide	0 - 50 ppm
Ethanolamine	0 - 100 ppm
Hexane	0 - 100 ppm
Hydrogen Cyanide	0 - 20 ppm
Methyl Methacrylate	0 - 250 ppm
Morpholine	0 - 50 ppm
Phosgene	0 - 5 ppm
Styrene	0 - 200 ppm
Vinyl Chloride	0 - 20 ppm
Xylene	0 - 200 ppm

UNIT SIZE: 70.6 cm x 22.9 cm x 27.9 cm

UNIT WEIGHT: 13.6 kg

UNIT COST: Miran 1B2 - $ 23600.
Miran 1BX - $ 26500.

external battery pack - $ 740.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Century OVA 128 Portable Organic Vapor Analyzer

DETECTION METHOD:

Flame Ionization

MODEL DESCRIPTION:

This is a dual mode analyzer. For instantaneous levels of hydrocarbons (calibrated to methane) the survey mode can be used, where the sample gas is pumped directly to the flame ionization chamber for combustion and analysis within 2 seconds. This model also contains a built-in chromatographic column. For identification of gases, the sample is injected onto the packed column and the retention time is monitored. The peaks are shown on the analog scale on the probe as they elute from the column, but for more accurate results, an optional chart recorder can be added. Once the specific gas is known, a meter scale overlay will calibrate the instrument to the specific gas range. The range for methane is 0 to 10, 0 to 100, or 0 to 1000 ppm, depending on the scale desired.

The flame is fueled by an internal compressed hydrogen tank. If the flame is extinguished, visual and audio alarms are triggered. The unit is powered by a 12 V rechargeable battery for a minimum of 8 hours of use. The probe can be extended 1.2 m from the body of the instrument. The unit comes complete with case, tool kit, probes, 2 chromatographic columns, charcoal filter, battery charger, manual and accessories.

UNIT SIZE: 23 cm x 30 cm x 10 cm

UNIT WEIGHT: 5.5 kg

UNIT COST: $ 9905.

for Tri-column option (for Benzene analysis) including a stripper column and T-24 column -
$ 10590.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Century OVA 108 Portable Organic Vapor Analyzer

DETECTION METHOD:

Flame Ionization

MODEL DESCRIPTION:

This is a dual mode analyzer. For instantaneous levels of hydrocarbons (calibrated to methane) the survey mode can be used, where the sample gas is pumped directly to the flame ionization chamber for combustion and analysis within 2 seconds. This model also contains a built-in chromatographic column. For identification of gases, the sample is injected onto the packed column and the retention time is monitored. The peaks are shown on the analog scale on the probe as they elute from the column, but for more accurate results, an optional chart recorder can be added. Once the specific gas is known, a meter scale overlay will calibrate the instrument to the specific gas range. The range for methane is 1 to 10 000 ppm.

The flame is fueled by an internal compressed hydrogen tank. If the flame is extinguished, visual and audio alarms are triggered. The unit is powered by a 12 V rechargeable battery for a minimum of 8 hours of use. The probe can be extended 1.2 m from the body of the instrument. The unit comes complete with case, tool kit, probes, 2 chromatographic columns, charcoal filter, battery charger, manual and accessories.

UNIT SIZE: 23 cm x 30 cm x 10 cm

UNIT WEIGHT: 5.5 kg

UNIT COST: $ 9905.

MANUFACTURER:

The Foxboro Company
Foxboro, MA. 02035
USA

DISTRIBUTOR:

Nortech Control Equipment, Inc
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Century Organic Vapor Analyzer (OVA-88)

DETECTION METHOD:

Flame Ionization

MODEL DESCRIPTION:

This is an indicator for combustible gas levels. It is calibrated to methane and displays the methane (combustibles) level on a variable analog scale (displayed on probe) with an optimum range of 1 to 100 000 ppm CH_4 in air. The audible alarm for high levels of combustibles is user adjustable. The built-in sampling pump delivers 1 to 2 litres of gas to the detector per minute, enabling the response time to be less than 2 seconds. A self-contained compressed hydrogen tank supplies fuel for the flame. If the flame is extinguished, visual and audio alarms are triggered. If desired, a recorder may be connected to provide permanent records of data. The unit is powered by a 12 V rechargeable battery for a minimum of 8 hours of use. The probe can be extended 1.2 m from the body of the instrument. The unit comes complete with case, tool kit, probes, battery charger, manual and accessories.

UNIT SIZE: 23 cm x 30 cm x 10 cm

UNIT WEIGHT: 5 kg

UNIT COST: $ 6250.

MANUFACTURER:

Gastec Corporation
3891 Ikebe-Cho,
Midori-ku, Yokohama,
226, Japan.

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

Gastec Sampling Pump and Detector Tubes

DETECTION METHOD:

Colorimetric Detector Tubes

MODEL DESCRIPTION:

This detector tube system makes use of a piston-style pump which delivers 50 or 100 cc of air per stroke. For use with this pump are over 200 different tubes available for more than 180 different compounds. The tubes are sold in packages of 10 and work on the principal of colorimetric reaction. As the air is drawn through the tube, the contents are exposed to the various compounds in the air. The amount of the contaminant (to which the tube has been sensitized) that is present is read directly from the tube since the concentration is proportional to the amount of contents which have undergone a colour change. The unit also has an optional pyrolyzer attachment for enhancement of the sensitivity in the analysis of fluorochlorocarbons (Freons) and some saturated hydrocarbons.

A few examples of the testing capabilities are shown below:

ANALYTE	RANGE
Acetic Acid	1 - 80 ppm
Aniline	1.25 - 60 ppm
Bromoform	0.5 - 18 ppm
1-Butanol	5 - 150 ppm
Chlorine	0.05 - 16 ppm
Cumene	5 - 2400 ppm
Diethylene Triamine	0.2 - 20 ppm
Gasoline	30 - 2000 ppm
Hydrocyanic Acid	0.36 - 120 ppm
Hydrogen Fluoride	0.25 - 20 ppm
Mercury Vapour	0.05 - 13.2 mg/m3
Methyl Isobutyl Ketone	0.01 - 0.06 %
Nitric Acid	1 - 200 ppm
Nitrogen Dioxide	0.1 - 100 ppm
Perchloroethylene	2 - 250 ppm
Phosgene	0.1 - 10 ppm
Pyridine	0.2 - 35 ppm

Toluene	5 - 600 ppm
Vinyl Chloride	0.25 - 54 ppm
Xylene	5 - 500 ppm

UNIT SIZE: Pump - 20 cm in length

UNIT WEIGHT: 285 g

UNIT COST: Pump - $ 170.
Tubes(box) - $ 25.

MANUFACTURER:

GasTech Inc.
8445 Central Avenue,
Newark, CA. 94560
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

GP-204 Combustible Gas Indicator (P-200 Series)

DETECTION METHOD:

Catalytic Combustion

MODEL DESCRIPTION:

This instruments is a hand aspirated "sniffer" for combustible gases. It displays gas levels on an analog meter in a range of 0 - 100% LEL or 0 - 100% by volume with a response time of 4 seconds. The unit is calibrated to methane. A sample hose can be attached for remote testing with an associated lag time of one second per 5 ft. of hose. The unit is powered by 2 D cell batteries for up to four hours of use. This is not a continuous monitor. The operating temperature range is -15C to +50C. Other models in the P-200 Series monitor for oxygen or for combustibles in various ranges. A detachable battery-operated pump is available as an option.

UNIT SIZE: 16.5 cm x 13.3 cm x 10 cm

UNIT WEIGHT: 2.3 kg

UNIT COST: $ 500. to $ 900. range

MANUFACTURER:

GasTech Inc.
8445 Central Avenue,
Newark, CA. 94560
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

GX Series (GX-82, GX-86)

DETECTION METHOD:

Electrochemical Cell and Catalytic Combustion

MODEL DESCRIPTION:

These are very small monitors but can still detect levels of combustible gases, oxygen, hydrogen sulfide and/or carbon monoxide within 20 seconds. The GX-86 model provides analysis of all four gases; the GX-82 monitors three gases, with the third gas optional between CO and H_2S. All levels are displayed simultaneously on the LCD screen. The range of detection is as follows:

Combustibles -	0-99% LEL
Oxygen -	0-40% by volume
Hydrogen Sulfide -	0-99 ppm
Carbon Monoxide -	0-500 ppm

A built-in microprocessor controls dosimetry sampling for time-weighted averages. A peak-level values are also stored. Preset audio/visual alarms warn user of dangerous concentrations of any of the monitored gases. The operating temperature range is -18C to +40C. Standard accessories include carrying case and 2 C cell batteries for up to 10 hours of continuous monitoring.

UNIT SIZE: GX-86 - 18.3 cm x 12.7 cm x 6.3 cm
GX-82 - 18.3 cm x 8.5 cm x 5 cm

UNIT WEIGHT: GX-86 - 1.36 kg
GX-82 - 1.1 kg

UNIT COST: $ 2900. or less

MANUFACTURER:

GasTech Inc.
8445 Central Avenue,
Newark, CA. 94560
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

Models CO-82, HS-82, and GP-82

DETECTION METHOD:

Electrochemical Cell or Catalytic Combustion

MODEL DESCRIPTION:

These pocket-portable single gas monitors can be carried with ease. The LCD readout provides continuous levels of hazardous gas within 20 seconds. Audio and visual alarms alert the user that preset limits have been exceeded. The sensor itself can be detached and affixed to an extension for remote testing. Two AA batteries can supply power for 100 hours of normal use. The display can be backlit for night-lighting but the battery life will be reduced.

The models currently available are:

MODEL	GAS DETECTED	RANGE
CO-82	Carbon Monoxide	0 - 500 ppm
HS-82	Hydrogen Sulfide	0 - 199 ppm
GP-82	Combustible Gases	0 - 99% LEL

UNIT SIZE: 14 cm x 7.5 cm x 2.5 cm

UNIT WEIGHT: 255 g (340 g for GP-82)

UNIT COST: approx. $ 900.

MANUFACTURER:

GasTech Inc.
8445 Central Avenue,
Newark, CA. 94560
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

GasTechtor Series - Combustible Gas Detectors

DETECTION METHOD:

Electrochemical and Catalytic Cells

MODEL DESCRIPTION:

The 12 instruments in this series are all rugged, field-portable instruments. They are able to detect one or more of combustible gases, oxygen, Hydrogen Sulfide, or Carbon Monoxide. Those with oxygen sensors have a range of 0 to 25 % Oxygen in air. The combustibles sensor enables the instrument to monitor 0 to 100% LEL and, in some models, the ppm level can be found. The CO range is 0 to 300 ppm and the H_2S range is 0 to 100 ppm. The units have either analog or digital meters for displaying the levels. Alarms are built-in for all gases and are user-adjustable. The models with an internal pump have a remote testing probe. Those without a pump use gas diffusion for collecting samples. For remote testing, the sensor can be detached and used with an extension cable. All units use a 8.5 V rechargeable battery pack with the option to use either external 12 V DC or AC power.

A summary of the capabilities of each model is given below:

MODEL	SENSORS			CHARGE LIFE	WEIGHT	SPECIAL
	Comb.	O_2	H_2S/CO	(Hours)	(kg)	FEATURES
1177	*			10	3.2	MSHA - 0-5% CH4
1313		*		40	3.2	
1214	*	*		10	3.6	MSHA - 0-5% CH4
1214S	*	*		8	3.6	Internal pump
1214MP	*	*		10	3.6	Synthesized speech response
1214SMP	*	*		8	3.6	Synthesized speech response, Internal pump
1939	*			8	3.2	Internal pump, Dual-scale:%/vol and %LEL
1939OX	*	*		8	3.2	Internal pump, Dual-scale:%/vol

1238	*			8	3.6	Dual-scale: ppm and %LEL
1314	*	*		8	3.6	Dual-scale: ppm and %LEL
3220HS	*	*	H_2S	10	3.6	Internal pump, Dosimeter-TWA
3220CO	*	*	CO	10	3.6	Internal pump, Dosimeter-TWA

UNIT SIZE: 30.5 cm x 9.5 cm x 14 cm

UNIT WEIGHT: See above

UNIT COST: $ 1200. to 3700. range

MANUFACTURER:

GasTech Inc.
8445 Central Avenue,
Newark, CA. 94560
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

GasTechtor 4700

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These are single range detectors which are similar to the GasTechtor Series but analyze for one gas only. The detectable gases include Chlorine, Fluorine, Hydrogen Chloride, Hydrogen Fluoride, Hydrogen Cyanide, Ammonia, Sulfur Dioxide, and Hydrogen Sulfide. The gas level is read from a LCD screen. Each unit has a built-in sampling pump and remote testing probe. The response time is stated as 40 seconds with an error of less than 10%. The operating temperature range is -20C to +45C. Audio/visual alarms alert the user of high concentrations of the hazard gas. Power is supplied by an 8.5 V rechargeable NiCad battery pack which will maintain operations a minimum of 24 hours.

A summary of the capabilities of each model is given below:

ANALYTE	RANGE
Chlorine	0 - 10 ppm
Fluorine	0 - 10 ppm
Ammonia	0 - 100 ppm
Sulfur Dioxide	0 - 10 ppm
Hydrogen Chloride	1 - 15 ppm
Hydrogen Fluoride	0 - 15 ppm
Hydrogen Cyanide	0 - 50 ppm
Hydrogen Sulfide	0 - 50 ppm

UNIT SIZE: 30.5 cm x 9.5 cm x 14 cm

UNIT WEIGHT: 3.2 kg

UNIT COST: $ 3000. range

MANUFACTURER:

GfG Gas Electronics, Inc.
P.O. Box 1078,
Coraopolis, PA. 15108
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

Microco, Microtox

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These single gas detectors are pocket-portable. LCD readout gives constant reading of ppm levels of select gas. The response time is 15 seconds with an error of less than 3%. The power is supplied by a rechargeable NiCad battery for up to 100 hours of use. Audio/visual alarms are factory preset but user-adjustable.

The Microco senses Carbon Monoxide in the range of 0 to 200 ppm in air. The Microtox detects Hydrogen Sulfide in the range of 0 to 50 ppm in air.

UNIT SIZE: 10 cm x 5 cm x 4 cm

UNIT WEIGHT: 284 g

UNIT COST: $ 1131.60

Carrying case - $58.80
Charger - $210.50

MANUFACTURER:

GfG Gas Electronics, Inc.
P.O. Box 1078,
Coraopolis, PA. 15108
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

Exotector

DETECTION METHOD:

Catalytic Combustion and hybrid TC

MODEL DESCRIPTION:

This instrument responds to combustible gas levels in air. Within 10 s, the level is displayed on an analog meter. The built-in sampling pump maintains steady flow of air through the detection chamber. The range can be specified as 0-5000 ppm of CH_4, 0-100% LEL, or 0-100% by vol. CH_4. The audiovisual alarm is triggered whenever the level exceeds that of the preset limit. The power is supplied by a rechargeable NiCad battery.

UNIT SIZE: 12.7 cm x 9 cm x 5 cm

UNIT WEIGHT: 680 g

UNIT COST: $ 1008.

Carrying case - $74.50
Charger - $210.50

MANUFACTURER:

GfG Gas Electronics, Inc.
P.O. Box 1078,
Coraopolis, PA. 15108
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

MODEL NAME:

Polytector Series

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These hand-held devices have three detectors for gas levels. They will monitor Oxygen, Combustible gases (Methane), and either Carbon Monoxide or Hydrogen Sulfide. The Polytector VII also monitors temperature, pressure, and humidity. Pulsing alarms will be triggered by exceeding the preset limit of any of the gas levels. Any level can be displayed on the LCD screen at any time by pressing the appropriate button on the calculator-type keyboard. The typical response time to a change in level of any gas would be 30 seconds. All data gathered by these instruments is stored in a built-in datalogger for averaging and analysis through PC interface capabilities (Datalogger standard on Polytector VII, optional on Polytector III). The power is supplied by a rechargeable NiCad battery.

UNIT SIZE: 21.5 cm x 9 cm x 6.3 cm

UNIT WEIGHT: 880 g

UNIT COST: $ 5150.

Carrying case - $74.50
Charger - $210.50

MANUFACTURER:

GMD Systems, Inc.
Old Route 519,
Hendersonville, PA. 15339
USA

DISTRIBUTOR:

Nortech Control Equipment
135 - 4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

AUTOSTEP Multipurpose Portable Continuous Monitors

DETECTION METHOD:

Colorimetric Paper

MODEL DESCRIPTION:

This instrument series depends on sensitive colorimetric paper for detection of specific hazardous gases. To analyze for a specific gas, the corresponding cartridge is inserted into the unit and is ready to provide analyses. An internal sampling pump keeps a constant stream of air flowing through the paper. The accumulation of the gas of interest is measured by the amount of colour change of the paper. A photodiode detector receives the information and translates the level to a LCD bargraph on the unit. After a specified interval, a new section of paper is exposed. The sampling rate is determined by the type of analysis being performed. A high flow rate corresponds to fast response for detection of toxic gas levels in leak or spill situations. Lower flow rates are used when continuous monitoring is desired. Audio/visual alarms warn of high concentrations of hazardous gases.

There are models available for Phosgene, Hydrazines, Aromatic and Aliphatic Isocyanates, and Acid Gases (HF and HCl). The operating temperature range is -10C to +40C with a accuracy within 15% of reading. A 0-2.5 V recorder output enables hook-up of optional chart recorder. The power is supplied by rechargeable lead-acid batteries (internal), 12 V external supply, or 115 V AC line (with converter).

UNIT SIZE: 25.4 cm x 12.7 cm x 10 cm

UNIT WEIGHT: 2.4 kg

UNIT COST: Complete System (Monitor, Recorder, Battery Charger, Paper cassette, Accessories, Case) - $ 4995.

Individual Monitor (Monitor, Battery Charger, Paper cassette, Accessories) - $ 3350.

Replacement Cassette - $ 30.

MANUFACTURER:

HACH Company
P.O. Box 389,
Loveland, CO. 80539
USA

DISTRIBUTOR:

Chemonics Scientific,Ltd.
2020R-32nd Ave. NE.,
Calgary, Alberta.
T2E 6T4

Fryston Canada, Inc.
1515 Matheson Blvd.,
Suite B-10,
Mississauga, Ontario.
L4W 2P5

Prairie Industrial
Chemicals, Inc.
2302 Hanselman Ave.,
Saskatoon, Saskatchewan.
S7L 5Z3

John Meunier, Inc.
6290 rue Perinault,
Montreal, Quebec.
H4K 1K5

Sealand Sales Limited
316 6th Avenue West,
Vancouver, B.C.
V5Y 1K9

Atlantic Purification Systems, Ltd.
10 Ferguson Road,
Dartmouth, Nova Scotia.
B3A 4M1

Oxford Scientific Products, Inc.
289 Blakie Road,
London, Ontario.
N6L 1B8

MODEL NAME:

DREL/2000 Portable Laboratory, 45250-10

DETECTION METHOD:

Colorimetric and titrimetric

MODEL DESCRIPTION:

The DREL/2000 contains an electronic spectrophotometer, a digital titrator, a complete instruction manual for procedures, apparatus, and all reagents required for more than 25 preprogrammed tests. In addition, tests and reagents are available for 47 other contaminants. Optional are the digital pH meter and conductivity meter. The readout is 1.5 cm high LCD characters. There is an external RS232 port for computer hook-up

if desired. The detection limit is typically in the 0.05 ppm range for the best tests. Power is supplied by rechargeable 8V battery or by AC line using adaptor.

Some tests available are:

Aluminum	0-0.80 mg/L	Nitrogen, Ammonia	0-2.50 mg/L
Arsenic	0-0.20	Nitrogen, Nitrate	0-4.5
Barium	0-100	Oil	0-85
Boron	0-14.0	Oxygen, Dissolved	0-13.0
Bromine	0-4.50	Phenols	0-0.200
Chlorine	0-2.00	Phosphorus	0-30.0
Chromium, Hexavalent	0-0.60	Polyacrylic acid	0-20.0
Copper	0-5.00	Sodium Chromate	0-1100
Cyanide	0-0.200	Sulfate	0-65.0
Formaldehyde	0-0.350		
Lead	0-0.160		
Manganese	0-20.0		

UNIT SIZE: 61 x 32 x 25 cm

UNIT WEIGHT: 16 kg for standard kit

UNIT COST: $ 2092 for basic lab. (no reagents)
$ 2967 for basic lab. + reagents and apparatus

MANUFACTURER:

HACH Company
P.O. Box 389,
Loveland, CO. 80539
USA

DISTRIBUTOR:

Chemonics Scientific,Ltd.
2020R-32nd Ave. NE.,
Calgary, Alberta.
T2E 6T4

Fryston Canada, Inc.
1515 Matheson Blvd.,
Suite B-10,
Mississauga, Ontario.
L4W 2P5

Prairie Industrial
Chemicals, Inc.
2302 Hanselman Ave.,
Saskatoon, Saskatchewan.
S7L 5Z3

John Meunier, Inc.
6290 rue Perinault,
Montreal, Quebec.
H4K 1K5

Sealand Sales Limited
316 6th Avenue West,
Vancouver, B.C.
V5Y 1K9

Atlantic Purification Systems, Ltd.
10 Ferguson Road,
Dartmouth, Nova Scotia.
B3A 4M1

Oxford Scientific Products, Inc.
289 Blakie Road,
London, Ontario.
N6L 1B8

MODEL NAME:

DREL/2000 Soil Test Laboratory, 45250-20

DETECTION METHOD:

Colorimetric and titrimetric

MODEL DESCRIPTION:

The DREL/2000 contains an electronic spectrophotometer, a digital titrator, a complete instruction manual for procedures, apparatus, and all reagents required for 6 preprogrammed tests. In addition, tests and reagents are available for other contaminants. Also included are the digital pH meter and conductivity meter. The readout is 1.5 cm high LCD characters. There is an external RS232 port for computer hook-up if desired.

The kit is essentially the same as the portable water laboratory with the addition of soil extraction capability. Power is supplied by an 8V rechargeable battery with optional AC hook-up using adaptor.

Some tests available are:

- pH
- Lime requirement
- Nitrate-nitrogen
- Ammonia-nitrogen
- Phosphorus
- Potassium

UNIT SIZE: 61 x 32 x 25 cm

UNIT WEIGHT: 19 kg

UNIT COST: $ 3850 for soil lab., pH meter, reagents and apparatus.

MANUFACTURER:

HACH Company
P.O. Box 389,
Loveland, CO. 80539
USA

DISTRIBUTOR:

Chemonics Scientific,Ltd.
2020R-32nd Ave. NE.,
Calgary, Alberta.
T2E 6T4

Fryston Canada, Inc.
1515 Matheson Blvd.,
Suite B-10,
Mississauga, Ontario.
L4W 2P5

Prairie Industrial
Chemicals, Inc.
2302 Hanselman Ave.,
Saskatoon, Saskatchewan.
S7L 5Z3

John Meunier, Inc.
6290 rue Perinault,
Montreal, Quebec.
H4K 1K5

Sealand Sales Limited
316 6th Avenue West,
Vancouver, B.C.
V5Y 1K9

Atlantic Purification Systems, Ltd.
10 Ferguson Road,
Dartmouth, Nova Scotia.
B3A 4M1

Oxford Scientific Products, Inc.
289 Blakie Road,
London, Ontario.
N6L 1B8

MODEL NAME:

Individual Test Kits

DETECTION METHOD:

Colorimetric and Titrimetric

MODEL DESCRIPTION:

These kits incorporate the Hach DR 100 colorimeter with any of the colorimetric reagent packages marketed by Hach. The colorimeter itself is set to a single wavelength designed to be optimum for the specific test with which it is packaged. The tungsten-lens light source provides >100,000 tests and is powered by 4 AA cells with the approximate life of 340 tests. The response time is 5 seconds with an accuracy of ±2% of full scale.

The operating temperature is 0 to 45 C.

The titrimetric tests are packaged with the Hach digital titrator. The titrant is provided as a cartridge and is pre-standardized.

The reagent packages available are numerous. The following test kits include reagents, DR 100 colorimeter, carrying case, instructions, and necessary labware.

ANALYTE	RANGE(ppm)	TYPE
Ammonia	0-3	Colorimetric
Chlorides	0-100, 0-400	Titrimetric
Chlorine	0-2, 0-3.5	Colorimetric
Chromium	0-0.5	Colorimetric
Chromium	0-1000	Titrimetric
Copper	0-3	Colorimetric
Cyanide	0-0.2	Colorimetric
Fluoride	0-2, 0-8	Colorimetric
Formaldehyde	0-1%, 0-10%	Titrimetric
Hydrazine	0-0.3	Colorimetric
Hydrogen Peroxide	0-2, 0-10	Titrimetric
Iron	0-2, 0-5	Colorimetric
Lead	0-80 ppb	Colorimetric
Manganese	0-0.6	Colorimetric
Nitrates	0-0.4, 0-30	Colorimetric
Nitrites	0-150	Colorimetric
Phosphates	0-3	Colorimetric
Sulfates	0-80	Colorimetric
Sulfites	0-1000	Titrimetric
Zinc	0-1.5, 0-3	Colorimetric

UNIT SIZE: colorimetric kits generally are 31 x 20 x 11 cm.
titrimetric kits are generally 23 x 17 x 14 cm.

UNIT WEIGHT: colorimetric kits - approx. 2.25 kg
titrimetric kits - approx. 0.5 kg

UNIT COST: variable

MANUFACTURER:

Hanby Analytical Laboratories, Inc.
4400 South Wayside, Suite 107,
Houston, TX. 77087
USA

MODEL NAME:

Field Test Kit

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This field kit is designed to analyze for aromatic compounds (including BTEX, gasoline, diesel, and PCB's) in water and soil samples. The procedure involves an extraction, addition of a single reagent, and comparison to a colour chart. The entire procedure requires less than 10 minutes for tests in water and less than 45 minutes for analysis in soil. The kit comes with enough reagents for 30 tests.

UNIT SIZE:

UNIT WEIGHT:

UNIT COST: $600 US
Replacement chemicals - $200 US

MANUFACTURER:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

Detecto-Pak II M

DETECTION METHOD:

Flame-Ionization Detector

MODEL DESCRIPTION:

This instrument measures the level of combustible hydrocarbons using flame ionization. The hydrogen-nitrogen fuel used for combustion comes in a refillable bottle to last at least 8 hours. The power comes from a single, 6V rechargeable battery which also lasts eight hours in the field. An adjustable, audio alarm can be set to alert user of high hydrocarbon levels. The analog meter can be switched to read concentration of combustibles in five ranges: 0-10, 50, 100, 500, and 1000 ppm. This detector would be most useful for gases such as methane, ethane, propane, and natural gas. Each unit comes with a rechargeable battery and charger, a telescopic probe (64 to 104 cm), 2 fuel cylinders, filters, carrying case and straps, and user's manual.

UNIT SIZE: **of carrying case: 26.7 x 28 x 58.4 cm**

UNIT WEIGHT: **detector: 4.1 kg**
additional hardware: 2.6 kg
(carried by shoulder and belt straps)

UNIT COST: **$6595.**

MANUFACTURER:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

EI-4 Ethane Identifier

DETECTION METHOD:

Semi-conductor type sensor

MODEL DESCRIPTION:

This unit can be used as an ethane detector for a range of 0 to 50 ppm or as an indicator for presence of natural gas. The lexan probe can sample both air and soil gas for ethane and, within 2 minutes, the ethane concentration is displayed on the analog meter. A 56L compressed air bottle and regulator are required to supply a constant pressure and, along with a carrying case, are included. Four alkaline D cells will power the instrument for 12 hours of use. An optional recorder can be added to the system which would cut the battery life to 6 hours.

UNIT SIZE: **18 x 33 x 41 cm in carrying case**

UNIT WEIGHT: **7.5 kg**

UNIT COST: **$1875.**
Battery-powered chart recorder - $775.

MANUFACTURER:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

GMI Gasurveyor 4

DETECTION METHOD:

Pellistor Type Sensor

MODEL DESCRIPTION:

These monitors are flammable gas detectors. They have LCD analog and digital displays to show concentrations and percent LEL of combustible gases. They can be calibrated to any one specific flammable gas (eg. Methane, propane, ethane) which, obviously, will have the most reliable results. Other flammable gases will be detected, but not quantitatively. The instrument will respond within 5 seconds to a new sample introduced. A built-in alarm will sound if the pre-set threshold limit is surpassed. This instrument will measure 0-100% LEL or 0-1000 ppm of the calibrated gas with an error of less than 2% LEL and less than 50 ppm. The 4 D cell batteries will supply power for up to 15 hours.

UNIT SIZE: **18 x 9.5 x 10.5 cm**

UNIT WEIGHT: **1.6 kg**

UNIT COST: **$1,550.**

MANUFACTURER:

HNU Systems, Inc.
160 Charlemont Street,
Newton, MA. 02161-9987
USA

DISTRIBUTOR:

HNU Systems(Canada), Ltd.
85 Albert St.,Suite 1610,
Ottawa, Ontario.
K1P 6A4

MODEL NAME:

HW-101

DETECTION METHOD:

Photoionization Detector

MODEL DESCRIPTION:

This instrument is not specific to any gas. Gases with an ionization energy lower than that of the source lamp will be ionized and show a reading on the analog meter. The probes are interchangeable (8.5, 10.2, and 11.7 eV). The lower energy is more specific to the larger molecules (eg. aromatics). The higher energy probe will detect more gases but these smaller molecules will interfere when measuring the larger compounds. The built-in sample pump allows the probe to be extended to 50 feet for remote use. The typical usage would be for hazardous waste areas and soil gas testing. When specific gases are known, an appropriate meterscale overlay can be used to give a direct concentration reading (in ppm). These readings are accurate within 5% and the response time is within 5 seconds. Many gases have been calibrated to these overlays and an optional package of overlays is available. The unit is powered by a rechargeable lead acid battery which provides 10 hours of continuous use. Other models are also available which are identical in sampling technique but with slight modifications for specialized usage (including the PI-101, IS-101, GP-101 models).

UNIT SIZE: Module - 21 x 13 x 24 cm
Probe - 6.3 x 34.3 cm

UNIT WEIGHT: 4.4 kg

UNIT COST: $6500

MANUFACTURER:

HNU Systems, Inc.
160 Charlemont Street,
Newton, MA. 02161-9987
USA

DISTRIBUTOR:

HNU Systems(Canada), Ltd.
85 Albert St.,Suite 1610,
Ottawa, Ontario.
K1P 6A4

MODEL NAME:

Field Portable XRF

DETECTION METHOD:

X-Ray Fluorescence

MODEL DESCRIPTION:

This instrument detects all elements simultaneously from Sodium through to Uranium in ppm levels. The source can be one of three radioactive isotopes, each for a specific range of elements. It can be mounted on a back-pack for on-site testing. The rechargeable battery pack is included. An optional computer set-up can be used to analyze data. Applicable to detection of hazardous materials and heavy metals in soil and sludge. Si(Li) semi-conductor detector requires liquid Nitrogen to maintain operating temperature.

UNIT SIZE: 38 x 56.4 x 24.6 cm

UNIT WEIGHT: 18.2 kg

UNIT COST: $ 50000

MANUFACTURER:

HNU Systems, Inc.
160 Charlemont Street,
Newton, MA. 02161-9987
USA

DISTRIBUTOR:

HNU Systems(Canada), Ltd.
85 Albert St.,Suite 1610,
Ottawa, Ontario.
K1P 6A4

MODEL NAME:

311

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

This field-portable GC uses a photo-ionization detector to detect sub-ppm levels of contaminants in ambient air and injected air or gas samples. The iso-thermal oven maintains a constant capillary column temperature from ambient to 200 C. The built-in plotter provides real-time chromatographs, accompanied by data reports and TWA/STEL reports.

The microprocessor controls automatic functions such as zeroing and autorange. The data system also numbers all peaks but is not able to identify them. The built-in 100 compound library contains names of compounds for labelling of peaks only. The labelling is determined by the user. Once the peaks have been determined, the user may select specific peaks (gases) for a quantitative analysis. For most compounds, run-time is less than 15 minutes.

The instrument is AC powered by mains or generator. The operating temperature range is 10C - 35C. Carrier and calibration gases are contained within the body of the instrument and provide 8 hours of use before refilling is necessary.

UNIT SIZE: 38 x 56.4 x 24.6 cm

UNIT WEIGHT: 18.2 kg

UNIT COST: $21000

MANUFACTURER:

Industrial Scientific Devices, Inc.
355 Steubenville Pike,
Oakdale, Pennsylvania.
15071-1093

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

ISD 200 Series

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This series of hand-held devices continuously monitors for hazardous gases and displays the level on an LCD screen. Different models are designed for simultaneous detection of up to 3 gases. The rechargeable NiCad batteries provide approximately 9 hours of continuous use. The sensors have an operating range of 0C to 40C. Alarm levels and calibration can be done by the user. A sampling pump with remote sensor is optional.

The models available include:

MODEL	DETECTABLE GASES	RANGE	WEIGHT	PRICE
HS267	Hydrogen Sulfide	0-1999 ppm	410 g	$1098
SO261	Sulfur Dioxide	0-200 ppm	410 g	$1295
CO260	Carbon Monoxide	0-1999 ppm	410 g	$1038
OX231	Oxygen	0-30% /vol	410 g	$ 921
CD210	Methane	0-5% /vol	410 g	$ 541
LD220	Combustible Gases	0-99% LEL	410 g	$ 911
MX240	Oxygen Methane	5-30% /vol 0-5% /vol	605 g	$1355
MX241	Oxygen Combustible Gases	5-30% /vol 0-100% LEL	605 g	$1355
CMX270	Oxygen Methane Carbon Monoxide	0-30% /vol 0-5% /vol 0-1999 ppm	624 g	$1984

CMX271	Oxygen	0-30% /vol		
	Combustible Gases	0-100% LEL		
	Carbon Monoxide	0-1999 ppm	624 g	$1984
HMX271	Oxygen	0-30% /vol		
	Combustible Gases	0-100% LEL		
	Hydrogen Sulfide	0-1999 ppm	624 g	$1984

UNIT SIZE: 121 mm x 70 mm x 38 mm

UNIT WEIGHT: See Above

UNIT COST: See Above

MANUFACTURER:

International Sensor Technology
17771 Fitch Street,
Irvine, CA. 92714
USA

DISTRIBUTOR:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

AG5100

DETECTION METHOD:

Solid-state sensors

MODEL DESCRIPTION:

This is a single channel detector. The gas detected can be any one of over 90 gases. Each instrument is calibrated for the chosen gas and has an analog meter to display the concentration of that gas. An audible alarm is built-in. Each unit is powered by rechargeable Ni-Cd batteries for up to 10 hours of use. The unit may be left connected to an AC charger for continuous monitoring also. Some of the detectable gases and ranges are listed in the description of the Model AG5000.

UNIT SIZE: 10 x 17 x 4 cm

UNIT WEIGHT: 510 g

UNIT COST: $1500.

MANUFACTURER:

International Sensor Technology
17771 Fitch Street,
Irvine, CA. 92714
USA

DISTRIBUTOR:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

AG5000

DETECTION METHOD:

Solid-state sensors

MODEL DESCRIPTION:

This is a single channel detector. The gas detected can be any one of over 90 gases. Each instrument is calibrated for the chosen gas and has an analog meter to display the concentration of that gas. Each unit is powered by rechargeable Ni-Cd batteries for up to 10 hours of use. The unit may be left connected to a built-in AC charger for continuous monitoring also. Sampling pumps are available. An audible alarm is standard. Unit comes with carrying case.

Some examples of possible detection features:

Gas Detected	Full Ranges (ppm)
Ammonia (NH_3)	50,100,200,300,500,1000, 2000,2500,and 5000
Carbon Disulfide (CS_2)	50, 60
Chloroform ($CHCl_3$)	200
Freon-22 ($CHClF_2$)	100,200,500,1000, and 2000
Hydrogen Cyanide (HCN)	20,50,100,200,10000
Silicon Tetrafluoride (SiF_4)	1000
Vinyl Chloride (CH_2CHCl)	20,40,100,400,1000, and 4000

UNIT SIZE: 10.5 x 13.4 x 19.7 cm

UNIT WEIGHT: 2.2 kg

UNIT COST: $2100.

MANUFACTURER:

International Sensor Technology
17771 Fitch Street,
Irvine, CA. 92714
USA

DISTRIBUTOR:

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

AG6000

DETECTION METHOD:

Solid-state sensors

MODEL DESCRIPTION:

This is a dual gas detector. The gases detected are hydrocarbons and Hydrogen Sulfide. The analog meter may be switched to read 0-200 ppm H_2S or percent LEL of hydrocarbons (chiefly methane). An audible alarm is built-in. Each unit is powered by rechargeable Ni-Cd batteries for up to 10 hours of use. The unit may be left connected to the built-in AC charger for continuous monitoring.

UNIT SIZE: 10.5 x 13.1 x 19.7 cm

UNIT WEIGHT: 2.2 kg

UNIT COST: $2500.

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

STC Single Test Colorimeter Kits

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

These kits are designed for one contaminant only. The colorimeter is set to a specific wavelength so that the user need only insert the sample and read the contaminant concentration directly. Each kit includes a hand-held colorimeter, sample vials, reagents for 100 tests, accessories, and plastic carrying case. The analog meter reads accurately within 2%. A single 9V DC battery is required, or an optional AC adaptor can be used.

There are 25 different test kits available. Among them are the following :

Model	Chemical Measured	Range (mg/L)
STC-NH	Ammonia	0-3.0
STC-CL	Chlorine	0-2.5
STC-CY	Cyanuric Acid	0-140
STC-HZ	Hydrazine	0-0.7
STC-NA	Nitrate	0-2.5
STC-NI	Nitrite	0-0.5
STC-PN	Phenols	0-6.0
STC-SU	Sulfate	0-100

UNIT SIZE: Colorimeter - 171 x 88 x 88 mm

UNIT WEIGHT: 454 g

UNIT COST: $200-$220 US
+ $14 for AC adapter

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

MTRL Colorimeter, Code 1997-AC

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This solid-state colorimeter uses interchangeable filters to create five distinct wavelengths for use in 28 tests for contaminants. The analog meter readout is on a removable scale of 0-100% Transmittance, with an accuracy of within 2%. The kit includes sample vials, filters, 2 9V batteries, AC adapter, the colorimeter, and carrying case. Reagent kits are available separately and each include a meter scale, for direct-reading of concentration, which is inserted in place of the Transmittance scale.

The tests available for use with this kit include :

Code	Test Factors	Range
7915-WS	Ammonia	0-3.0
7916-WS	Chlorine	0-2.5
	Bromine	0-5.0
	Iodine	0-8.0
7918-WS	Chromium, Hexavalent	0-1.0
6657-WS	Hydrogen Peroxide	0-2.0
6723-WS	Morpholine	0-6.0
6645-WS	Phenols	0-6.0

Also available from LaMotte is a model with identical capabilities with a permanent % Transmittance scale.

UNIT SIZE: Colorimeter - 19 x 14 x 7 cm
Case - 30.5 x 20.2 x 10 cm

UNIT WEIGHT: Colorimeter - 900 g
Kit in case - 2.72 kg

UNIT COST: $402.90 US

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Octa-Slide

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This series of test kits requires to visually compare the colour of the test cell to coloured slides. The Octa-Slide Colour Bar provides eight translucent reference standard slides. The slides are suited to each test so that the concentration of the contaminant can be read directly from the slide sheet in ppm. Each kit contains reagents and accessories for at least 50 tests, colour slides and viewer in a waterproof carrying case. There are test kits available for : Ammonia, Chlorine, Chromate, Iron, Nitrate, pH, Phosphate, Silica, and Sulfide.

UNIT SIZE: n/a

UNIT WEIGHT: n/a

UNIT COST: $20-$40 US

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Noskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Model TRL-05 Electronic Lab

DETECTION METHOD:

Colorimetric and Titrimetric

MODEL DESCRIPTION:

This kit features the TRL Colorimeter and it's complement of 15 complete colorimetric tests in combination with reagents and apparatus for 5 titrimetric tests and meters for testing pH, conductivity, and dissolved solids. In total, there are 22 tests for contaminants in water. All components are securely mounted in a foam-lined plastic case. The TRL colorimeter has five interchangeable light filters and runs on 2 9V batteries and has a fixed analog % Transmittance meter scale. Calibration charts for each test are provided to convert %T into concentration in ppm.

The Colorimeter tests are the same as those identified by the MTRL Colorimeter. The titrimetric tests are for alkalinity, Carbon Dioxide, Chloride (Salinity), Hardness, and dissolved Oxygen.

UNIT SIZE: 61 x 51 x 51 cm

UNIT WEIGHT: 16.3 kg

UNIT COST: $1195. US

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Model TRL-12 Soil Lab

DETECTION METHOD:

Colorimetric and Titrimetric

MODEL DESCRIPTION:

This kit features the TRL Colorimeter and 10 colorimetric tests in combination with reagents and apparatus for three titrimetric tests in soil. There are also electronic meters for testing pH and dissolved salts. All tests begin with a liquid-soil extraction. There are enough reagents for 50 tests for each chemical. The TRL colorimeter has five interchangeable light filters, runs on 2 9V batteries and has a fixed analog % Transmittance meter scale. Calibration charts convert % Transmittance from the analog meter into ppm or pounds/acre. All components are securely mounted in a foam-lined plastic case.

The Colorimeter tests are the same as those identified by the MTRL Colorimeter. The titrimetric tests are for calcium, magnesium, and chlorides.

UNIT SIZE: 70 x 53 x 51 cm

UNIT WEIGHT: 16.8 kg

UNIT COST: $1195. US

MANUFACTURER:

LaMotte Chemical Product Company
P.O. Box 329,
Chestertown, MD. 21620
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Model AM-61

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This kit combines six tests for air pollutants into one unit. All necessary pieces of equipment, including impingers and sampling pump, an instruction manual, and reagents for 25 tests for each pollutant are included. Each test has it's own compartment within the carrying case. The sampling pump (powered by 1.5V C batteries) is in it's own case.

The six usual test modules are for ammonia, chlorine, lead, nitrogen dioxide, sulfur dioxide, and total oxidants. Other test modules are sold separately. Some of the tests are :

Code	Pollutant	Reagent system	Sensitivity (ppm)
7735	Ammonia	APHA / Nessler's	0.72
7782	Carbon Monoxide	Silver suspension	10
7973	Chlorine	DPD tablet method	0.01
7961	Cyanide	dye oxidation	0.05
6695	Formaldehyde	modified Schiff's	0.13
7671	Hydrogen Sulfide	APHA Pomeroy	0.02
7691	Sulfur Dioxide	West-Gaeke method	0.01
7738	Total Oxidants	Haagen-Smit method	0.07

UNIT SIZE: 61 x 38 x 53 cm

UNIT WEIGHT: 10.9 kg

UNIT COST: $640.40 US

MANUFACTURER:

Lovibond/ The Tintometer Company
Busch Corporate Center
206 Packets Court,
Williamsburg, VA. 23185
USA

DISTRIBUTOR:

JOHNS SCIENTIFIC
175 Hanson Street,
Toronto, Ontario.
M4C 1A7

MODEL NAME:

PC 100 Photometer

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This photometer uses LED's as a light source for the photometer. The complete kit consists of the photometer, 19 Photochrom modules, reagents, and accessories in a carrying case. The modules contain filters to match the specific peak for a given contaminant. Results are read from an LCD display. The power requirements are rechargeable Ni-Cd cells.

Some of the tests are:

Aluminum	0-0.6 mg/L	Manganese	0-1.0 mg/L
Ammonium	0-0.75	Nitrate	0-0.5
Bromine	0-13	Nitrite	0-0.5
Chlorine,total	0-6.0	Ozone	0-1.0
Chloride	0-100	Phosphate	0-10
Chromate	0-10	Sulphate	0-200
Cyanuric acid	0-80	Zinc	0-1.0
Iron	0-1.0		

UNIT SIZE: 22 x 20 x 12 cm

UNIT WEIGHT: 2.5 kg

UNIT COST: $ 3800.

MANUFACTURER:

Lovibond/ The Tintometer Company
Busch Corporate Center
206 Packets Court,
Williamsburg, VA. 23185
USA

DISTRIBUTOR:

JOHNS SCIENTIFIC
175 Hanson Street,
Toronto, Ontario.
M4C 1A7

MODEL NAME:

PC 10 Photometer

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This instrument has the capability for four pre-programmed tests. Test results are presented on a digital LC display. The instrument includes the photometer, reagents, and accessories in a carrying case. The power required is that of a single 9 V battery.

The tests available (to a maximum of four) :

Aluminum	0-0.5 mg/L
Bromine	0-13
Chlorine	0-1.5 or 0-6.0 mg/L
Cyanuric Acid	0-80 mg/L
Iron	0-1.0
Ozone	0-1.0
pH	Range 6.5-8.0

UNIT SIZE: 18 x 15 x 9.5 cm

UNIT WEIGHT: 2.7 kg

UNIT COST: n/a

MANUFACTURER:

Lovibond/ The Tintometer Company
Busch Corporate Center
206 Packets Court,
Williamsburg, VA. 23185
USA

DISTRIBUTOR:

JOHNS SCIENTIFIC
175 Hanson Street,
Toronto, Ontario.
M4C 1A7

MODEL NAME:

Minikits

DETECTION METHOD:

Titrimetric

MODEL DESCRIPTION:

These kits are for specific tests and contain enough reagent to perform typically 40 tests. The principal involves adding pre-packaged tablets to the sample until a colour reaction is observed. The accuracy depends on the number of tablets required to initiate the change and the result found actually should be a range rather than a single value. The broadness of the range depends on the size of the sample and the amount of reagent released by each tablet. The kits include reagents, instructions, and any accessories required.

There are over 20 Minikits including those for :

ANALYTE	RANGE
Alkalinity	0-500 mg/L
Calcium	0-500
Chloride	0-5000
Chromate	0-100
Nitrite	0-1500
Sulphate	0-200
Sulphite	0-50

UNIT SIZE: 12 x 10 x 5 cm

UNIT WEIGHT: 120 g

UNIT COST: n/a

MANUFACTURER:

Lovibond/ The Tintometer Company
Busch Corporate Center
206 Packets Court,
Williamsburg, VA. 23185
USA

DISTRIBUTOR:

JOHNS SCIENTIFIC
175 Hanson Street,
Toronto, Ontario.
M4C 1A7

MODEL NAME:

Lovibond 2000 Comparator

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This instrument uses discs containing colour glass standards. The instrument should be used with a standard light source for reliable results. The basis of the Comparator is the use of a prism to view the coloured sample and the colour glass standard in the same frame of the viewer. The carrying case contains the Comparator, the discs, reagents (in tablet form), and accessories. Battery-powered "daylight" light source is also necessary if daylight conditions are poor.

There is a large degree of freedom with this type of instrument in that many tests can be incorporated with minimal effort. Some of the 400 tests already available are :

Aluminum	0-0.5 mg/L	Phenols	0-4.0 mg/L
Amines	0-10	Phosphate	0-2.0
Ammonia	0-10	PCP	0-0.9%
Chlorine	0-4.0	Potassium	0-8.0 mg/L
Chromium	0-0.20	Sodium	0-250
Cyanide	0-1.0	Sodium Hypochlorite	0-16% w/w
Hydrogen Peroxide	0-3.0	Sulphate	0-80 mg/L
Lead	0-2.0	Sulphite	0-50
Nitrate	0-200	Thiocyanate	0-70
Nitrite	0-0.6	Zinc	0-4.0

UNIT COST: Comparator - $ 82.
Standard Disks - $ 82. each
Reagent Tablets - variable

MANUFACTURER:

Lumidor Safety Products (Canada)
3573 14th Avenue, Unit 12,
Markham, Ontario.
L3R 2L6

MODEL NAME:

LP-PGM-13 "Gasponder" III

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This unit provides quick analysis of concentrations of Methane, Carbon Monoxide or Hydrogen Sulphide, or Oxygen for continuous monitoring or emergencies. The digital LCD meter can be set to read percent Oxygen, percent LEL of combustibles, or toxic gas concentrations (calibrated to CO or H_2S). The internal sampling pump works continuously when instrument is on. Four rechargeable D cells power the unit for up to 14 hours of continuous use. The alarms, both audio and visual, are factory set but are internally adjustable. Charger is included but carrying case (optional) is not.

The sensor responses are :

Gas Detected	Response Time	Error
Methane	within 20s	5% LEL
Carbon Monoxide	within 30s	1% on 0-500 ppm range
Hydrogen Sulphide	within 30s	1% on 0-100 ppm range
Oxygen	within 30s	0.2%

The toxic gas sensor is only accurate for the calibration gas, either CO or H2S, but not both.

UNIT SIZE: **13.8 x 19 x 7 cm**

UNIT WEIGHT: **1.8 kg**

UNIT COST: **$ 2,157**

MANUFACTURER:

Lumidor Safety Products (Canada)
3573 14th Avenue, Unit 12,
Markham, Ontario.
L3R 2L6

MODEL NAME:

LP-PGM-14 "Gasponder" IV

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This unit provides quick analysis of concentrations of Methane, Carbon Monoxide, Hydrogen Sulphide, or Oxygen for continuous monitoring or emergencies. The digital LCD meter can be set to read percent Oxygen, percent LEL of Methane, 0-400 ppm CO or 0-100 ppm H_2S. The internal sampling pump works continuously when instrument is on. Four rechargeable D cells power the unit for up to 12 hours of continuous use. The alarms, both audio and visual, are factory set but are internally adjustable. Charger and carrying case are optional.

The sensor responses are :

Gas Detected	Range	Error
Methane	0-100%LEL	5% LEL
Carbon Monoxide	0-400 ppm	2%
Hydrogen Sulphide	0-100 ppm	2%
Oxygen	0-30 %	0.5%

UNIT SIZE: 5.4 x 12.7 x 19.6 cm

UNIT WEIGHT: 1.36 kg

UNIT COST: $ 2,357

MANUFACTURER:

Lumidor Safety Products (Canada)
3573 14th Avenue, Unit 12,
Markham, Ontario.
L3R 2L6

MODEL NAME:

"Gasponder" I & II

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

These models analyze for dangerous concentrations of explosive gas. The Model II also monitors oxygen concentration. The digital LCD meter can be set to read percent Oxygen or percent LEL of combustibles. The internal sampling pump works continuously when instruments are on. Four rechargeable D cells power each unit for up to 14 hours of continuous use. The alarms, both audio and visual, are factory set but are internally adjustable. Methane is used to calibrate for 'Combustible Gas'.

Model I : UNIT SIZE: 6.7 x 9.5 x 15.8 cm

UNIT WEIGHT: 0.7 kg

UNIT COST: $1385 (includes AC charger)

Model II: UNIT SIZE: 7 x 13.7 x 19 cm

UNIT WEIGHT: 1.6 kg

UNIT COST: main unit - $1910
carrying case - $76
sampling hose (with water trap) - $93

MANUFACTURER:

Lumidor Safety Products (Canada)
3573 14th Avenue, Unit 12,
Markham, Ontario.
L3R 2L6

MODEL NAME:

Scen-trio

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This is a three-sensor instrument for monitoring concentrations of oxygen, combustibles, and toxic gases. The visual and audio alarms are pre-set to threshold limits of 19.5 % Oxygen, 100 ppm Carbon Monoxide, and 20 % LEL of Methane. The combustible sensor may also be set to propane, butane, or natural gas and the toxic sensor can be calibrated to Hydrogen Sulfide or Chlorine. The LCD numerical display can be switched to read battery level or any of the three sensor readings. This unit can be powered by AC current, but the rechargeable battery pack (included) powers the unit for up to 14 hours of continuous use.

UNIT SIZE: **5.4 x 12.7 x 19.6 cm**

UNIT WEIGHT: **1.4 kg**

UNIT COST: **$1421**

MANUFACTURER:

Lumidor Safety Products (Canada)
3573 14th Avenue, Unit 12,
Markham, Ontario.
L3R 2L6

MODEL NAME:

MPU-4

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This instrument monitors the level of Oxygen, Carbon Monoxide, Hydrogen Sulfide, and Methane and stores data for peak levels and time weighted average of all four gases. The LCD screen shows present levels of the four gases simultaneously. The peak and time weighted average values can be displayed on the screen or transferred to computer via computer interface port. Alarms are preset to alert the user to dangerous levels of any of the four monitored gases. The unit also has a built-in clock and thermometer which are both displayed at the same time as the gas readings. The unit is powered by 3 rechargeable C cells and comes with a charger included. An internal sampling pump is optional and recommended for field use.

UNIT SIZE: 15.3 x 6 x 18 cm

UNIT WEIGHT: 1.53 kg

UNIT COST: $2696 with sampling pump

MANUFACTURER:

MAST Development Co.
4673 Aircenter Circle,
Reno, NV. 89502
USA

MODEL NAME:

Series 724 Oxidant Monitors

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

These instruments are oxidant monitors in that they will measure the amount of iodine liberated from potassium iodide reagent. Ozone and the halogens give strong reactions. Factory calibrations are provided for continuous monitoring of ozone or chlorine, but other oxidants may be field calibrated, including acid vapors. The warm-up time may be as much as 2 hours. The portable models are powered by a rechargeable sealed lead acid battery for up to 20 hours of use. The charger as well as premixed reagents are included. Alarms are available for alerting users to dangerous conditions. The oxidant level in parts per million is read from an analog meter. An external jack is available for recorder connection.

The portable models available in this series are:

Model	Range (ppm)	Lag Time (max. in seconds)
724-4	0-1.00	5
724-7	0-10.0	14
724-9	0-5.0	7

UNIT SIZE: 19 x 15.2 x 29.2 cm

UNIT WEIGHT: 5.45 kg

UNIT COST: $2400 - $3000 US

MANUFACTURER:

MDA Scientific, Inc.
405 Barclay Boulevard,
Lincolnshire, IL. 60069
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Monitox Personal Alarms

DETECTION METHOD:

Gel-type Electrochemical Cell

MODEL DESCRIPTION:

These pocket-portable devices are specific to a single gas. They are designed for continuous monitoring of dangerous levels of certain gases. An adjustable two-stage audio alarm is a feature for most models (others non-adjustable). The LCD readout registers quick response to changes in concentration. The power supplied by two 5.6 V batteries will last for up to 2000 hours of normal use. The normal operating temperature is in the range of 0C to +45C, but for cold climate conditions, a special battery pack will extend the range down to -30C. Within this entire range, the error is expected to remain less than 10%.

The following Monitox monitors are available with digital readout:

Substance	Range
Carbon Monoxide	0 - 300 ppm
Chlorine	0 - 10 ppm
Hydrogen Cyanide	0 - 100 ppm
Hydrogen Sulfide	0 - 100 ppm
Oxygen	2 - 35% vol
Sulfur Dioxide	0 - 20 ppm
Phosgene	0 - 1 ppm

Other Monitox monitors are available with alarm only (no display). All models can be connected to a Chronotox output which records monitoring information and computes time weighted averages for 15 minute and 8 hour intervals and copies the data on a built-in printer.

UNIT SIZE: 10.5 cm x 6.2 cm x 2.4 cm

UNIT WEIGHT: 150 g

UNIT COST: $1000 - $1660 range

MANUFACTURER:

MDA Scientific, Inc.
405 Barclay Boulevard,
Lincolnshire, IL. 60069
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Formaldemeter Mark II

DETECTION METHOD:

Fuel Cell

MODEL DESCRIPTION:

This compact instrument is designed to detect the level of formaldehyde in the air. A simple on/off meter with an LCD screen, this instrument provides a concentration level within 20 seconds of testing. The effective range is 0.3 to 99.9 ppm of formaldehyde. Within the lower range (0.3 to 10 ppm), the reading is within 15% of the actual formaldehyde level. The detector has been designed to prevent interference by alcohols and phenols.

The power required is a single 9 V battery for approximately 1000 field tests.

UNIT SIZE: 12.0 cm x 6.3 cm x 3.0 cm

UNIT WEIGHT: 200 g

UNIT COST: $ 1063 - includes case, calibration pack, phenol filters and thermometer.

MANUFACTURER:

MDA Scientific, Inc.
405 Barclay Boulevard,
Lincolnshire, IL. 60069
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

TLD-1 Toxic Gas Detector

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This gas monitor uses a dry colorimetric technique to monitor the level of hazardous fumes. The method employs chemically sensitive paper, which is dispensed slowly and continuously, first to be exposed to the ambient air, then to the detector, where a strong LED source is reflected by the paper to a sensitive photodiode. There are 13 different rolls of paper, referred to as "Chemcassettes", which can be interchanged to provide detection of 34 different compounds. The concentration is displayed on a LCD screen within as little as 10 seconds.

The Chemcassette is matched with the appropriate "ChemKey". The ChemKey is inserted into the side of the unit and, in essence, calibrates the machine for a specific gas. Each gas which can be detected has an appropriate ChemKey to adapt the detector amplifier to suit the detection range to be displayed on the screen. The TLD-1 can only analyze for a single gas at a time, but switching over to another Chemcassette and Chemkey is very simply done.

There is an audio/visual alarm which is factory preset. The power is supplied by a rechargeable lead-acid battery for up to 8 hours of use. External power can be supplied by AC through the battery charger. A built-in output port (4-20 mA) enables a chart recorder or control system to be connected, if desired.

Some of the capabilities are described below:

GAS	RANGE	RESPONSE TIME	CHEMCASSETTE
Ammonia	10 - 75 ppm	30 s	Ammonia
Bromine	30 - 300 ppb	60 s	Bromine
Chlorine	0.3 - 3 ppm	15 s	Chlorine
Diisocyanates	3 - 60 ppb	120 s	Diisocyanates
Hydrazine	30 - 300 ppb	120 s	Hydrazine
Arsine	25 - 150 ppb	15 s	Hydrides
Diborane	50 - 300 ppb	30 s	Hydrides
Hydrogen Cyanide	3 - 30 ppm	10 s	HCN

Hydrogen Sulfide	3 - 30 ppm	10 s	H_2S
Hydrogen Chloride	2 - 15 ppm	10 s	Mineral Acids
Hydrogen Fluoride	1 - 9 ppm	30 s	Mineral Acids
Sulfuric Acid	75 - 750 ppb	120 s	Mineral Acids
Nitrogen Dioxide	1 - 9 ppm	30 s	NO_2
Phosgene	30 - 300 ppb	30 s	Phosgene
Sulfur Dioxide	1 - 6 ppm	15 s	SO_2

UNIT SIZE: 16.5 cm x 21.2 cm x 17.7 cm

UNIT WEIGHT: 4.1 kg

UNIT COST: $ 5896.

MANUFACTURER:

Microsensor Technology Inc.
41762 Christy Street,
Fremont, CA. 94538
USA

MODEL NAME:

M200 Microsensor Gas Analyzer

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

This unit employs two GC's to provide a rapid analysis of a gas or vapour sample and compares to a built-in library of over 100 standards. The tandem GC columns may be any two of : DB-5 (4M x 0.1 mm ID), DB-1701 (4M x 0.1 mm ID), Molecular Sieve 5A (25 cm x 0.5 mm ID), or a HayeSep A (25 cm x 0.5 mm ID). The run time is very quick for a Gas Chromatograph at 255 seconds maximum. The identification and quantification is displayed on a LCD screen. This also limits the minimum detectable quantity to 1 ppm. The column temperature runs between 30 and 200C with the sample pressure at 0 to 30 PSIG. Each GC has it's own injection system, column oven and pressure regulator. The unit requires an external Helium supply and power source. There is an interface option with a computer through an RS232 port or to an analog integrator for charted results.

UNIT SIZE: **15 x 25 x 35 cm**

UNIT WEIGHT: **5.45 kg**

UNIT COST:

M200 mainframe and 2 GC modules	**$7900 US**
Estimated cost of accessories for regular use (not integrator)	**$500 US**

MANUFACTURER:

Mine Safety Appliances Co. of Canada Ltd.
148 Norfinch Drive,
Downsview, Ontario.
M3N 1X8

MODEL NAME:

Combustible Gas Indicators

DETECTION METHOD:

Catalytic Combustion With Thermal Cell

MODEL DESCRIPTION:

These combustible gas detectors come as Models 20, 30, and 40. Model 20 is a single-scale analog meter (0-100% LEL) with up to 5 individual scale calibrations for separate flammable gases. Model 30 resembles the Model 20, but is calibrated for only two gases - natural gas and petroleum vapours. The Model 40 responds with either a 0-100% LEL or 0-10% LEL scale and is calibrated to pentane only. Other gas concentrations can be determined by comparing the supplied response curves to the % LEL on the scale.

The gas is pumped into the cell by a hand-operated aspirator bulb. The units operate on 8 dry cell batteries.

UNIT SIZE: **12.7 cm x 10 cm x 15.2 cm**

UNIT WEIGHT: **2.75 kg**

UNIT COST: **$1145.**

MANUFACTURER:

Mine Safety Appliances Co. of Canada Ltd.
148 Norfinch Drive,
Downsview, Ontario.
M3N 1X8

MODEL NAME:

Samplair Pump and Testing Kit

DETECTION METHOD:

Detector Tubes

MODEL DESCRIPTION:

The Samplair pump is a piston-type air sampler. The pump must be manually operated to draw the air through the sample tubes (25, 50, 75, or 100 mL per stroke). The tubes used are direct-reading. The amount of colour change within the tube contents is proportional to the concentration of the gas. There are over 140 detectable gases and vapours by the Samplair test system. The tubes are sold in packages of 10.

Some examples of the available detector tubes are:

ANALYTE	RANGE (ppm)
Acetonitrile	10 - 200
Amyl Alcohols	25 - 2000
Perchloroethylene	0 - 800
Phosgene	0.1 - 10
Propanols	100 - 10000
Propylene Oxide	10 - 1000
Styrene, monomer	0 - 500
Sulfur Dioxide	1 - 400
Freon 113	100 - 4000
Vinyl Chloride	0 - 100
Benzene	0 - 150
Carbon Disulfide	0 - 100
Carbon Tetrachloride	0 - 70
1,2-Dichloroethane	12.5 - 350
Diethylamine	10 - 200
Ethyl Mercaptan	0.5 - 100
Hydrogen Chloride	2 - 170
Nitrogen Dioxide	0 - 30

UNIT COST: $255.88 - price includes pump, carrying case, accessories, and six packages of tubes.

MANUFACTURER:

Mine Safety Appliances Co. of Canada Ltd.
148 Norfinch Drive,
Downsview, Ontario.
M3N 1X8

MODEL NAME:

Explosilarm Portable Combustible Gas Alarm, Model 100

DETECTION METHOD:

Catalytic Combustion With Thermal Cell

MODEL DESCRIPTION:

This detector measures combustible gas levels on a 0-100% analog display. The unit is calibrated to pentane and the audio/visual alarm is factory pre-set to 20% LEL. An optional 6' probe rod can be used for remote testing. The power is supplied by a rechargeable 2.4 V battery pack for up to 10 hours of continuous use. Since this instrument relies on combustion for detection, it will only function under normal oxygen concentrations in air. The sensor will be fouled if exposed to leaded gasoline or silicon compounds. Harness and charging cable are standard.

UNIT SIZE: **25.4 cm x 17.8 cm x 9.5 cm**

UNIT WEIGHT: **2.75 kg**

UNIT COST: **$1592**

MANUFACTURER:

National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Detector Tubes

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

The Draeger bellows pump has not changed design since it's inception several years ago. It's simple, reliable design has made it a standard with many emergency response groups. Each stroke of the bellows (by hand) draws 100 cc of air through the detector tube. These detector tubes are glass tubes filled with an inert material (usually silica gel) which has been impregnated with a colorimetric reagent specific to the hazardous gas of concern. The tube is calibrated to indicate the concentration of the gas by the length of the colour stain. Detector tubes are available for close to 100 different gases or vapours. Some of the tubes and their range of detection are shown below:

GAS	RANGE	OTHER RANGES?
Acetylene	500 - 3000 ppm	
Acrylonitrile	1 - 30 ppm	*
Ammonia	5 - 700 ppm	*
Arsine	0.05 - 60 ppm	
Benzene	5 - 50 ppm	*
Carbon Tetrachloride	1 - 15 ppm	*
Cyanide	2 - 15 mg/m3	
Hydrazine	0.2 - 10 ppm	*
Mercaptan	0.5 - 5 ppm	*
Monostyrene	10 - 200 ppm	*
Phosgene	0.04 - 1.5 ppm	*
Toluene Diisocyanate	0.02 - 0.2 ppm	
Vinyl Chloride	1 - 50 ppm	*
o-Xylene	10 - 400 ppm	

UNIT SIZE: Bellows (in carrying case) - 19 cm x 14 cm x 16 cm
Tubes - 13 cm long

UNIT WEIGHT: 227 g

MANUFACTURER:

National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Multiwarn

DETECTION METHOD:

Catalytic Bead and Electrochemical sensors

MODEL DESCRIPTION:

These models incorporate three sensors in one compact unit. The LCD screen simultaneously displays %LEL of combustible gases, % by volume oxygen, and ppm levels of either carbon monoxide or hydrogen sulfide. As well as constantly monitoring these levels, STEL and TWA measurements are performed. The current levels and the short-term exposure values can be viewed by the user. Long-term measurements can be determined through the use of a recorder output or RS232 port. Audible and visual alarms are triggered if the levels are exceeded in any of the monitoring modes, including long-term TWA. The alarm limits are user-adjustable. A built-in pump which is listed as an option is recommended for rapid field analysis. The instrument can be purchased with either of the two toxic gas sensors or without, depending on application.

SENSOR	RANGE	RESPONSE TIME
Hydrogen Sulfide	0-200 ppm	< 30 s
Carbon Monoxide	0-200 ppm	< 30 s
Combustibles	0-100% LEL	< 20 s
Oxygen	0-25%/vol	< 25 s

The operating temperature range is -20 to +40 C. The power is supplied by an internal rechargeable battery for 8-10 hours while running the sampling pump. The charging module allows up to five Multiwarns to be charged simultaneously.

UNIT SIZE: 12.4 x 19 x 6.3 cm

UNIT WEIGHT: 1.4 kg

UNIT COST: $ 2550.

MANUFACTURER:

National Draeger, Inc.
101 Technology Drive,
P.O. Box 120,
Pittsburgh, PA. 15230
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Triowarn

DETECTION METHOD:

Electrochemical sensors

MODEL DESCRIPTION:

This instrument is constructed in the same way as the Multiwarn instruments. The LCD screen simultaneously displays ppm levels of carbon monoxide and hydrogen sulfide, and % by volume oxygen. As well as constantly monitoring these levels, STEV and TWA measurements are performed. The current levels and the short-term exposure values can be viewed by the user. Long-term measurements can be determined through the use of a recorder output or RS232 port. Audible and visual alarms are triggered if the levels are exceeded in any of the monitoring modes, including long-term TWA. The alarm limits are user-adjustable. A built-in pump which is listed as an option is recommended for rapid field analysis.

SENSOR	RANGE	RESPONSE TIME
Hydrogen Sulfide	0-200 ppm	< 30 s
Carbon Monoxide	0-200 ppm	< 30 s
Oxygen	0-25%/vol	< 25 s

The operating temperature range is -20 to +40 C. The power is supplied by an internal rechargeable battery for 8-10 hours while running the sampling pump.

UNIT SIZE: 12.4 x 19 x 6.3 cm

UNIT WEIGHT: 1.4 kg

UNIT COST: na

MANUFACTURER:

Neotronics North America, Inc.
P.O. Box 370,
2144 Hilton Drive,
Gainesville, GA. 30501-6153
USA

DISTRIBUTOR:

Cantech Corporation
4119 Cousens Street,
St. Laurent, Quebec.
H4S 1V6

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Exotox Model 40/50 Series

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

The Exotox monitors are able to monitor up to four gases simultaneously. The LCD screen displays only one concentration at a time, but all gases are continuously monitored for alarm levels, including time-weighted averages and short-term exposure limits where applicable. These audible/visible alarms are factory pre-set to appropriate regulations. The sampling is done by a hand-held pump. The 8 hour time weighted averages and the short-term exposure limits are calculated by the internal microprocessor. The instrument will operate in the temperature range of -15C to +50C. A rechargeable battery supplies power for 10 to 14 hours of use. A 0-1 V output on the Model 55 will allow hookup to a portable printer or a datalogger recording device.

The detection capabilities of the sensors are shown below, with as many as four sensors being used in any one instrument.

ANALYTE	RANGE	DETECTION LIMIT
Oxygen	0 - 35 %	0.1 %
Combustibles	0 - 99 % LEL	1 % LEL
Carbon Monoxide	0 - 999 ppm	1 ppm
Hydrogen Sulfide	0 - 500 ppm	1 ppm
Sulfur Dioxide	0 - 99.9 ppm	0.1 ppm

UNIT SIZE: Model 40 (1 to 3 sensors) - 18 cm x 9.5 cm x 4.5 cm
Model 50/55 (4 sensors) - 21.5 cm x 9.5 cm x 4.5 cm

UNIT WEIGHT: 900 g

UNIT COST: $ 2650. - includes case, straps, hand sampling pump and accessories

MANUFACTURER:

Neotronics North America, Inc.
P.O. Box 370,
2144 Hilton Drive,
Gainesville, GA. 30501-6153
USA

DISTRIBUTOR:

Cantech Corporation
4119 Cousens Street,
St. Laurent, Quebec.
H4S 1V6

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Neotox

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

This single-gas pocket-portable instrument features continuous digital readout of gas concentration. Each model monitors a different specific gas in air. The user-adjustable audible/visible alarm warns of dangerous concentrations. The operating temperature range is -17C to 45C. All monitors are CSA approved. Each unit is powered by a single 9V dry cell for 200 hours of continuous use or with rechargeable Ni-Cd battery for up to 110 hours of continuous use.

The properties of each model are given below:

ANALYTE	RANGE	DETECTION LIMIT
Oxygen	0 - 35 %	0.1 %
Carbon Monoxide	0 - 1999 ppm	1 ppm
Hydrogen Sulfide	0 - 999 ppm	1 ppm
Sulfur Dioxide	0 - 199.9 ppm	0.1 ppm
Chlorine	0 - 199.9 ppm	0.1 ppm

UNIT SIZE: 10 cm x 6 cm x 2.6 cm

UNIT WEIGHT: 150 g

UNIT COST: $650 - $950 range

MANUFACTURER:

NOVA Analytical Systems Inc.
43 West Avenue N.,
Hamilton, Ontario.
L8L 5C1

DISTRIBUTOR:

Veronics Instruments Inc.
250 Wyecroft Rd., Unit 15
Oakville, Ontario.
L6K 3T7

MODEL NAME:

NOVA 370

DETECTION METHOD:

Electrochemical and Thermalconductivity Sensors

MODEL DESCRIPTION:

This instrument was designed for analysis of flue gas. It will monitor the levels of Carbon Monoxide, Carbon Dioxide, and Oxygen simultaneously. The display is LCD digital with backlighting. Within the operating temperature range of 0C to 40C, the response time is 5 to 8 seconds. The power is supplied by a rechargeable 'gel cell' battery for up to 16 hours of use or by AC power through the battery charger. The data for each sensor is given below:

GAS		RANGE	ERROR
Oxygen		0 - 35% vol	0.1% vol
Carbon Monoxide		0 - 4% vol	
	and	0 - 2000 ppm	10 ppm
Carbon Dioxide		0 - 20% vol	0.1% vol

UNIT SIZE: 25.5 cm x 14 cm x 14 cm

UNIT WEIGHT: 2.5 kg

UNIT COST: $ 3800.

MANUFACTURER:

NOVA Analytical Systems Inc.
43 West Avenue N.,
Hamilton, Ontario.
L8L 5C1

DISTRIBUTOR:

Veronics Instruments Inc.
250 Wyecroft Rd., Unit 15
Oakville, Ontario.
L6K 3T7

MODEL NAME:

NOVA 400 Series

DETECTION METHOD:

'Kuley' Electrolytic Sensors

MODEL DESCRIPTION:

These instruments are built around the 'Kuley' electrolytic sensor which can be characterized to be specific to a desired gas. This sensor is very stable and will respond to 90% of full-scale within 2 seconds. The CO, CO_2, and O_2 sensors are not Kuley sensors and have a longer response time and slightly less sensitivity. The current gas concentration is displayed on a LCD screen. The operating temperature range is 0C to 40C, with an error of 1% of full scale. Alarms are audio/visual and can be adjusted to specific danger levels. A 4-20 mA output allows attachment of recorders for permanent recording. The power is supplied by a rechargeable 'gel cell' battery for up to 16 hours of use or by AC power through the battery charger. The data for each sensor is given below:

MODEL	GAS	RANGE
400	Oxygen	18 - 23% vol
480	Carbon Monoxide	0 - 50 ppm
420	Carbon Dioxide	0 - 5000 ppm
430	Hydrogen Fluoride	0 - 3 ppm
440	Chlorine	0 - 1 ppm
450	Hydrogen Sulfide	0 - 3 ppm
460	Sulfur Dioxide	0 - 3 ppm
470	Hydrogen Cyanide	0 - 3 ppm
490	Hydrogen Chloride	0 - 3 ppm
495	Chlorinated Hydrocarbons	0 - 3 ppm

Expanded ranges are available.

UNIT SIZE: 30.5 x 35.5 x 20.3 cm

UNIT WEIGHT: 6.8 kg

UNIT COST: $ 2200 - $ 4500.

MANUFACTURER:

NOVA Analytical Systems Inc.
43 West Avenue N.,
Hamilton, Ontario.
L8L 5C1

DISTRIBUTOR:

Veronics Instruments Inc.
250 Wyecroft Rd., Unit 15
Oakville, Ontario.
L6K 3T7

MODEL NAME:

NOVA 7550P2

DETECTION METHOD:

Infra-red Sensors

MODEL DESCRIPTION:

This portable instrument is built specifically for engine exhaust analysis. Gas detection of Carbon Monoxide and Total Hydrocarbons is by infra-red detectors. Normal operating temperature is within the range of 0C to 40C. The detection range is 0 - 10% CO in air and 0 - 2000 ppm Hydrocarbons in air. The information is displayed on a backlit LCD screen. The response time is 10 to 12 seconds and the error is within 2% of full scale. The power is supplied by 12V DC vehicle battery (no internal battery) or optional AC hook-up. The 7550P2 comes complete with sample pump, filter, condensate trap, sample hose, and probe.

UNIT SIZE: **24 cm x 24 cm x 32.5 cm**

UNIT WEIGHT: **5.5 kg**

UNIT COST: **$ 3200.**

MANUFACTURER:

Oldham France S.A.
B.P. 962,
62038 ARRAS Cedex
France

DISTRIBUTOR:

Aquatronix, Inc.
70 Gibson Drive, Unit 8,
Markham, Ontario.
L3R 4C2

MODEL NAME:

OX 11

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

This instrument provides continuous monitoring of oxygen concentration from 0 to 99.9 %. The digital LCD screen responds to a concentration change within 7 seconds. The audio and visual alarms are triggered at both high and low threshold values of oxygen. The error at 25 C is rated at less than 5 %. The unit can be powered by a 9V dry cell for up to 600 hours or with a rechargeable Ni-Cd battery for up to 150 hours of continuous use.

UNIT SIZE: 130 x 63 x 28 mm

UNIT WEIGHT: 210 g

UNIT COST: $900.

MANUFACTURER:

Oldham France S.A.
B.P. 962,
62038 ARRAS Cedex
France

DISTRIBUTOR:

Aquatronix, Inc.
70 Gibson Drive, Unit 8,
Markham, Ontario.
L3R 4C2

MODEL NAME:

TX 11

DETECTION METHOD:

Electrochemical Cell

MODEL DESCRIPTION:

This series of toximeters monitor continuously for a single gas. The detectors respond to a concentration change within 30 seconds. The concentration is displayed on a digital LCD screen. The audio and visual alarms are triggered when threshold limits are exceeded. A 9V rechargeable battery will power the unit for up to 150 hours or a dry cell may be used for up to 600 hours of use. The models available in this series are:

Model	Gas Detected	Range(ppm)	Error
6514 596	Carbon Monoxide	0-300	1 %
6514 621	Hydrogen Sulfide	0-100	1 %
6514 622	Sulfur Dioxide	0-100	1 %

UNIT SIZE: 130 x 63 x 28 mm

UNIT WEIGHT: 210 g

UNIT COST: $1000.

MANUFACTURER:

Outokumpu Electronics
P.O. Box 85,
SF-02201,
Espoo Finland

DISTRIBUTOR:

Corrigan Instrumentation Ltd.
59 Sinclair Ave.,
Georgetown, Ontario.
L7G 4X4

MODEL NAME:

X-MET 880

DETECTION METHOD:

X-Ray Fluorescence

MODEL DESCRIPTION:

The X-Ray source is supplied by radioactive isotopes of Iron (Fe 55), Cesium (Cm 244), Cadmium (Cd 109), or Americium (Am 241). The instrument identifies and quantifies up to 6 elements simultaneously. All detection is elemental (no compounds identified). The central processor contains a library of 400 spectra for reference and comparison. The analysis of a sample includes automatically matching spectra with the library for the identification. The computed information is displayed on a LCD screen. The information can be stored for further subsequent analysis of data. A built-in jack allows interfacing with IBM PC compatible systems for permanent data storage and charting.

The probes are added as required. Each powder/liquid probe contains one source for a specific range of elements. These samples must be homogeneous and the powders must not be coarse for accurate results. The surface probe is dual-source for expanded range. This probe works best on smooth, flat surfaces and is the only one which is fully field-portable. Up to 6 different probes can be plugged into the central unit at once.

The power is supplied by AC mains or rechargeable battery pack for 12 hours of field use. The operating temperature range is -25C to +60C. Similar units are also available. For example, the X-Met 840 uses the same probes but doesn't have as much memory capability (100 spectra) or as many probe ports (3).

UNIT SIZE: in carrying case - 30 cm x 45 cm x 15 cm

UNIT WEIGHT: central unit + surface probe - 8.5 kg
add-on powder/liquid probes - 1.7 kg

UNIT COST: Central Unit + Probe - $ 45000.
additional probes - $ 15000.

MANUFACTURER:

Oxford Analytical Instruments
20 Nuffield Way,
Abingdon,
Oxon OX14 1TX
England

DISTRIBUTOR:

SCP Science
2367 Guenette,
St-Laurent, Quebec.
H4R 2E9

MODEL NAME:

Lab-X 1000

DETECTION METHOD:

X-ray Fluorescence

MODEL DESCRIPTION:

This instrument provides elemental analysis for any element between Aluminum and Uranium in the periodic table. It is most suited to metallic elements. Any two radioactive x-ray sources can be chosen (of Fe^{55}, Cd^{109}, Cm^{244}, or Am^{241}) and become permanent once installed. The samples can be introduced as liquids, metal solids, or powders (150 micron or less) and can be detected in ppm levels or percent composition, depending on the application. Analysis of a specific element can be obtained for maximum sensitivity or a full spectrum analysis can be obtained for screening samples. The run-time can be varied from 10 to 100 seconds. Set-up information and programming is done via an alpha-numeric keyboard with a 80 character LCD screen. Analyses are recorded using the built-in two-colour chart printer or by external equipment connected to the RS232 port. Power is supplied by AC mains or generator only.

UNIT SIZE: 45.7 x 13 x 57.5 cm

UNIT WEIGHT: 20 kg

UNIT COST: $33000 to $39000 depending upon sources selected

MANUFACTURER:

Photovac Incorporated
134 Doncaster Road, Unit 2,
Thornhill, Ontario.
L3T 1L3

DISTRIBUTOR:

Technical Marketing Associates
6695 Millcreek Dr., Unit 1,
Mississauga, Ontario.
L5N 5M5

MODEL NAME:

Photovac 10S

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

The 10S is a self-contained gas chromatograph which is easily field-portable and still maintains a good level of sensitivity. There are four options available. All options are constructed with dual column configuration and use a standard photoionization detector.

The 10S10 is the basic model featuring manual set-up and injection. An LCD screen with bar graph shows the peak height and status. An external chart recorder is required. The 10S30 performs automatic calibration at pre-determined intervals and has computerized sample/analysis sequencing. The pre-column enables automatic backflushing. A built-in printer/plotter charts the chromatograph and documents retention times and integration data for all peaks. The 10S55 is further sophisticated in it's ability to identify air contaminants. The self-contained computer can compare data with as many as 100 compounds in the libraries. Identified peaks are named and the ppm concentration is printed out. Up to 50 peaks can be detected in each analysis. If desired, a time weighted average feature will compute average concentrations for variable time periods. The additional feature of the 10S70 is it's ability to link with other devices with a built-in RS232/modem port.

The carrier gas recommended is air. The 10S stores enough carrier gas for approx. 2 days of use. The calibration gas is stored in a small cylinder which is easily accessible for replacement. The power can be supplied by either internal rechargeable batteries (8 hours of use), external AC, or external 12V DC source. Isothermal oven (optional) requires external power supply.

Detectable compounds by this method are: Aliphatic/aromatic hydrocarbons, halohydrocarbons, alcohols, ketones and aldehydes, ethylene oxide, arsine, phosphine, TRS components (including H2S) and glycol ether solvents, at 50 ppb or lower detection limits. The analysis time is consistently less than 10 minutes. All analyses are performed at low temperatures (50C or lower).

UNIT SIZE: 46 cm x 16 cm x 34 cm

UNIT WEIGHT: 13.3 kg

UNIT COST: $17,445 - price for Model 10S55 unit + column, AC adapter, and accessories

MANUFACTURER:

Photovac Incorporated
134 Doncaster Road, Unit 2,
Thornhill, Ontario.
L3T 1L3

DISTRIBUTOR:

Technical Marketing Associates
6695 Millcreek Dr., Unit 1,
Mississauga, Ontario.
L5N 5M5

MODEL NAME:

TIP

DETECTION METHOD:

Photo-ionization detector

MODEL DESCRIPTION:

The TIP is a wand-shaped instrument capable of detecting those gases and vapours with an ionization potential below 10.6 eV, including such gases as benzene, vinyl chloride, hydrogen sulfide, ethylene oxide, arsine, and phosphine. The instrument is unable to identify the gases being ionized due to it's general sensing feature. The scale can be adjusted by calibrating to a known gas. The `concentration' is displayed on the LCD screen. THe range of this instrument is 0.0-2000 ppm. The response to a concentration change is within 3 seconds with an error of no more than 15%.

An internal sampling pump maintains a flow rate of 275 mL/minute. The power is supplied by an internal rechargeable battery for 4 hours of continuous use or by an external battery pack. The batteries and charger are included with the instrument.

UNIT SIZE: 45 cm long x 6.3 cm diameter

UNIT WEIGHT: 1.5 kg

UNIT COST: TIP I (basic unit) - $ 4100.
TIP II (Class I approved) - $ 4900.

Calibration kit, carrying case, and accessories - $ 760.

MANUFACTURER:

Photovac Incorporated
134 Doncaster Road, Unit 2,
Thornhill, Ontario.
L3T 1L3

DISTRIBUTOR:

Technical Marketing Associates
6695 Millcreek Dr., Unit 1,
Mississauga, Ontario.
L5N 5M5

MODEL NAME:

MicroTIP

DETECTION METHOD:

Photo-ionization detector

MODEL DESCRIPTION:

The MicroTIP is a photo-ionization detector with a built-in microprocessor capable of detecting those gases and vapours with an ionization potential below 10.6 eV, including such gases as benzene, vinyl chloride, hydrogen sulfide, ethylene oxide, arsine, and phosphine. The instrument is unable to identify the gases being ionized due to it's general sensing feature. Calibration can be pre-programmed for up to 5 known gases. The concentration is displayed on the 2-line 16 bit LCD screen. The range of this instrument is 0.0-2000 ppm. The response to a concentration change is within 3 seconds with an error of no more than 15%. The operating temperature range is 0 to 40C. The audible alarm is triggered if a set concentration limit is exceeded.

The datalogging memory of 25K stores 12 hours of data. The stored data includes time, date, concentration, and location as well as minimum, maximum and average concentrations. The real-time information can be recorded directly via a 0-1V recorder output or the information can be stored and retrieved later through the RS232 port.

An internal sampling pump maintains a flow rate of 500 mL/minute. The power is supplied by an internal rechargeable battery for 4 hours of continuous use or by an external battery pack. The batteries and charger are included with the instrument.

UNIT SIZE: 43 cm x 9.5 cm x 14.6 cm

UNIT WEIGHT: 2.8 kg

UNIT COST: n/a

MANUFACTURER:

Quatrosense Environmental Ltd.
18i Enterprise Ave.,
Nepean, Ontario.
K2G 0A6

MODEL NAME:

Qx Series

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This instrument incorporates four gas sensors and a temperature sensor into one unit. The standard configuration of the gas sensors combines Hydrogen Sulfide, Oxygen, Carbon Monoxide, and combustibles sensors. The user may want to replace one or more of these sensors with other available detectors. Alternate sensors are for Hydrogen Cyanide, Chlorine, Hydrogen Chloride, Sulfur Dioxide, Nitrogen Dioxide, Nitric Oxide, Hydrogen, and Phosphine.

The built-in microprocessor controls the detectors which run simultaneously. The time-weighted averages are maintained for all channels. The digital display can show current gas levels, time-weighted averages, or display levels graphically over several time intervals. This information can also be relayed to outside equipment via the RS232 port. This instrument is also capable of receiving a 4-20 mA signal and graphing the input.

The operating temperature range is -20C to +30C. The internal aspirator pump is started automatically once testing is initiated. Alarm levels for all sensors are user-adjustable. The instrument is powered for 10-20 hours of operation using rechargeable lead acid batteries.

UNIT SIZE: **na.**

UNIT WEIGHT: **na.** **Unit not yet in full production.**

UNIT COST: **na.**

MANUFACTURER:

Scintrex
222 Snidercroft Road,
Concord, Ontario.
L4K 1B5

DISTRIBUTOR:

SCP Science
2367 Guenette,
St-Laurent, Quebec.
H4R 2E9

MODEL NAME:

LMA-3 Luminox (NO_2 in air monitor)

DETECTION METHOD:

Chemiluminescence detected by photo multiplier

MODEL DESCRIPTION:

This instrument operates by detecting the chemiluminescence produced when Nitrogen Dioxide encounters a surface wetted with a specially formulated solution. The signal from the photomultiplier is directly proportional to the mixing ratio of NO_2 in the air. The detection range is chosen between 0-20 or 0-200 ppb of NO_2 with a response time of less than 10 seconds. The continuous readout is a digital LCD display. A rechargeable battery provides power for up to 3 hours or the AC cord can be used, also. This unit has ports for connections with a plotter if desired.

UNIT SIZE: 38 x 20 x 22 cm

UNIT WEIGHT: 7 kg

UNIT COST: n/a

MANUFACTURER:

Scintrex
222 Snidercroft Road,
Concord, Ontario.
L4K 1B5

DISTRIBUTOR:

SCP Science
2367 Guenette,
St-Laurent, Quebec.
H4R 2E9

MODEL NAME:

HGG-3 Mercury Spectrometer

DETECTION METHOD:

Atomic Absorption

MODEL DESCRIPTION:

This is a back-pack model of atomic absorption spectrometer which is highly sensitive to mercury in soils, water, rocks, or soil gases. Trace quantities of mercury can be detected using the spectral wavelength of mercury in combination with the Zeeman effect to reduce interferences. The analog meter may be switched between scales of 0-3 x 10[-9] g Hg or 0-30 x 10[-9] g Hg. The instrument is powered by 4 rechargeable batteries for up to 3.5 hours of continuous use. A continuous AC power source is optional. An output jack for a recorder is built-in.

UNIT SIZE: 14 x 30 x 66 cm

UNIT WEIGHT: 19.4 kg including backpack

UNIT COST: n/a

MANUFACTURER:

Scott Aviation
225 Erie Street,
Lancaster, NY. 04086
USA

DISTRIBUTOR:

Levitt-Safety Limited
33 Laird Drive,
Toronto, Ontario.
M4G 3S9

Heath Consultants Limited
2085 Piper Lane,
London, Ontario.
N5V 3S5

MODEL NAME:

Scott-Alert

DETECTION METHOD:

Electrochemical Cells

MODEL DESCRIPTION:

This series of instruments measures for up to three of: Oxygen, Methane, Hydrogen Sulfide, Carbon Monoxide. The LCD screen provides continuous levels of one gas at a time. The memory feature holds peak values for all programmed gases. Audible alarms are built-in. Optional battery-powered or hand pumps are recommended for field use. The battery pack can be over-ridden by a 12V DC (cigarette lighter) source or an AC power cord.

The sensors used in this series and their performances-

Gases Detected	Range	Response Time	Error
Methane (CH_4)	0-100% LEL	<10 s	3%
Hydrogen Sulfide(H_2S)	0-199 ppm	<45 s	5%
Oxygen (O_2)	0-25%	<20 s	0.8%
Carbon Monoxide (CO)	0-199 ppm	<25 s	10%

The model numbers, which gases are sensed, and the battery life expectancy -

Model	Gases Detected	Battery Life(hrs)
S-101	CH_4	10
S-102	H_2S	>45
S-103	O_2	10
S-104	CO	>45
S-105	CH_4, O_2	10
S-106	CH_4, H_2S	8-10
S-107	CH_4, CO	8-10

S-108	CH_4, O_2, H_2S	8-10
S-109	CH_4, O_2, CO	8-10

UNIT SIZE: 79 x 159 x 41 mm

UNIT WEIGHT: 510 g

UNIT PRICE: Ranging $950 to $1595

MANUFACTURER:

Sensidyne, Inc.
12345 Starkey Road, Suite E,
Largo, FL. 33543
USA

DISTRIBUTOR:

Dur-Pro filtration
3505 Isabelle, Suite N,
Brossard, Quebec.
J4Y 2R2

MODEL NAME:

HazMat Kit

DETECTION METHOD:

Detector Tubes

MODEL DESCRIPTION:

The standard Sensidyne HazMat Kit incorporates 13 different types of detector tubes, a model 800 pump and extension cable, instructions, and logic chart contained in a leather case. The tubes are direct-reading for a number of gases and ranges for each. The piston-type pump can be used for 50 or 100 cc of gas per stroke.

UNIT SIZE: 20 x 15 x 8 cm (pump is 20 cm long)

UNIT WEIGHT: approx. 1 kg

UNIT COST: variable

MANUFACTURER:

Sensidyne, Inc.
12345 Starkey Road, Suite E,
Largo, FL. 33543
USA

DISTRIBUTOR:

Dur-Pro filtration
3505 Isabelle, Suite N,
Brossard, Quebec.
J4Y 2R2

MODEL NAME:

Mini Monitor

DETECTION METHOD:

Electrochemical Diffusion-Type

MODEL DESCRIPTION:

These pocket-size instruments have been set up as continuous air monitors with a response time of less than 20 seconds after a sample has been introduced. Each of the five monitors measures concentrations of a single gas. The monitors have an LED readout of gas concentration as well as built in alarms for concentrations above a set danger level. Two AA batteries power each monitor for 100+ hours of normal conditions, with a battery check feature for remaining battery life.

The features of each Mini Monitor are tabulated below.

Model Number	Gas Detected	Detection Range	Accuracy
7015242-1	CO	0-400 ppm	5%
7015242-2	H_2S	0-100 ppm	5%
7015242-3	O_2	0-40 %	0.5%
7015242-4	NO_2	0-10 ppm	5%
7015242-5	SO_2	0-20 ppm	5%

UNIT SIZE: 118 x 76 x 24 mm

UNIT WEIGHT: 200 g

UNIT COST: n/a

MANUFACTURER:

Sensidyne, Inc.
12345 Starkey Road, Suite E,
Largo, FL. 33543
USA

DISTRIBUTOR:

Dur-Pro filtration
3505 Isabelle, Suite N,
Brossard, Quebec.
J4Y 2R2

MODEL NAME:

SS 2000

DETECTION METHOD:

Electrochemical Diffusion-Type

MODEL DESCRIPTION:

This series of instruments are each designed for a specific gas to be detected. The analog scale measures gas concentration on a continuous basis (can be wall-mounted) with a response time of less than 15 seconds. The built-in alarms are set at TLV values but are adjustable. Rechargeable Nicad batteries supply power for 20 hours of continuous use. The accuracy of all of these instruments is rated as +/- 10 %.

The models available are listed below.

Model Number	Gas Detected	Detection Range(s) (ppm)
7011303-1	Ammonia	1-100 5-5000
7011303-2	Chlorine	0-3, 0-10 0-25, 0-100
7011303-3	HCN	0.3-30 0.5-50 1-100
7011303-4	Sulphur Dioxide	0-10
7011303-5	Carbon Dioxide	1000-10000 5000-50000
7011303-6	Hydrogen Sulphide	0.3-30
7011303-7	HF	0-10,0-25,0-100
7011303-8	HCl	0-10
7011303-10	Hydrogen	0-4 %
7011303-15	Fluorine	0-10
7011303-22	Bromine	0-10

UNIT SIZE: 216 x 173 x 109 mm

UNIT WEIGHT: 1.5 kg

UNIT COST: $ 3000 - includes battery pack and accessories

MANUFACTURER:

Sensidyne, Inc.
12345 Starkey Road, Suite E,
Largo, FL. 33543
USA

DISTRIBUTOR:

Dur-Pro filtration
3505 Isabelle, Suite N,
Brossard, Quebec.
J4Y 2R2

MODEL NAME:

SS 4000

DETECTION METHOD:

Controlled Potential Electrolysis

MODEL DESCRIPTION:

These 3 models have a dual-range analog meter which monitors continuously the concentrations of a specific gas. The response time for these gases is under 30 seconds with an expected error of up to 8 %. The alarms are factory set but can be adjusted. Each unit is powered by two AA batteries with an expected 35 hour lifetime running continuously. Indicators for battery life and flow rate are built-in. A remote sampling probe and carrying case are included. These will not work below 0 Celsius.

The capabilities of these instruments are :

Model Number	Gas Detected	Detection Range
7010900-1	Phosphine	a) 0-15 ppm b) 0-30 ppm
7010901-1	Arsine	a) 0-5 ppm b) 0-10 ppm
7010902-1	Silane	a) 0-5 ppm b) 0-10 ppm

UNIT SIZE: 11 x 15 x 7 cm

UNIT WEIGHT: 1.5 kg

UNIT COST: n/a

MANUFACTURER:

Sentex Sensing Technology, Inc.
553 Broad Avenue,
Ridgefield, NJ. 07657
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Scentor

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

This portable GC is self-contained. It runs on an internal 12 V battery and has a storage of carrier gas and calibration gas. The microprocessor performs integration and concentration calculations. This information is compared to a library of up to 100 compounds. The conclusions of the analysis (of up to 16 compounds simultaneously) are documented on a hardcopy printout which includes the report but not the chromatograph. The chromatograph is displayed on the LCD screen, which is also used for displaying set-up information.

The detectors for the unit are: Electron Capture (ECD), Argon Ionization (AID), and Photoionization (PID)(optional). The sensitivity of these detectors is sub-ppm levels for most compounds. The unit is fitted with 1/8 " OD column up to 12' in length. The oven can be heated to 130C maximum.

The carrier gas is Argon. The internal tank can store up to 40L of Argon (8 hours operation). The calibration gas storage tank can hold 20L of gas. External ports, for AC power, carrier and calibration gases, and also RS232 for computer linkage, are built-in.

UNIT SIZE: **14 cm x 46 cm x 46 cm**

UNIT WEIGHT: **18.2 kg**

UNIT COST: **$ 20,495.**

MANUFACTURER:

Sentex Sensing Technology, Inc.
553 Broad Avenue,
Ridgefield, NJ. 07657
USA

DISTRIBUTOR:

Safety Supply Canada
214 King St. E.,
Toronto, Ontario.
M5A 1J8

MODEL NAME:

Scentograph

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

This suitcase-size unit includes a miniature high temperature gas chromatograph and a detachable, lap-top computer. The integration and concentration calculations are done internally and displayed on the PC screen upon request. The software also enables users to display the chromatograph and 'zoom in' on specific peaks for information. The information can be saved on diskettes. The library contains 120 pre-programmed compounds for comparison and identification functions.

The detectors are paired with the appropriate carrier gas and are interchangeable. With Argon as the carrier gas, the Electron Capture (ECD) or Argon Ionization (AID) detector can be used. With Helium as the carrier gas, the option is for Photo-ionization / Thermal Conductivity (PID/TCD) detectors. Each unit has storage capacity of 40L of carrier gas for 8 hours of operation. Typical sensitivities for these detectors are given as: 0.01 ppm Benzene with the AID,
0.01 ppb Chlorinated Hydrocarbons with the ECD,
0.1 ppb Benzene with the PID,and
100 ppm Nitrogen with the TCD.
The maximum oven temperature is 180 C and can be reached at a rate of 3 C per minute.

The Scentograph can be run by a 12 V DC rechargeable battery (internal) for 6 to 8 hours or it can be hooked into an AC source. Also internal is the storage tank for 20L of calibration gas.

UNIT SIZE: 10 cm x 48 cm x 50 cm

UNIT WEIGHT: 22.3 kg

UNIT COST: na

MANUFACTURER:

Shawcity Limited
Pioneer Road,
Faringdon, Oxon.
SN7 7BU
England

DISTRIBUTOR:

Nortech Control Equipment
135-4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

MVI Mercury Vapour Indicator

DETECTION METHOD:

Ultra-violet Photometer

MODEL DESCRIPTION:

This is an air monitor for mercury vapour analysis. An integral sampling pump provides constant flow of air through the cell. The level of mercury is displayed on a LCD screen within the range of 0.1 to 200 ug/cubic meter of air. The response time to a change in level is 3 seconds with an error less than 5% of full scale. The operating temperature range is 10C to 50C. The power is supplied by an internal NiCad rechargeable battery for up to 6 hours of continuous use.

UNIT SIZE: **14.5 cm x 29.5 cm x 80 cm**

UNIT WEIGHT: **2.6 kg**

UNIT COST: **$ 2950.**

MANUFACTURER:

Sierra Monitor Corporation
1991 Tarob Court,
Milpitas, CA. 95035
USA

DISTRIBUTOR:

United Resource Safety
330-2912 Memorial Dr.,
Calgary, Alberta.
T2A 6R1

MODEL NAME:

Model 55

DETECTION METHOD:

Electrochemical cell

MODEL DESCRIPTION:

This pocket-portable oxygen monitor will display the oxygen concentration on a LCD screen within 10 seconds with a full scale accuracy of $\pm$3%. The operating temperature range is 0C to 50C. The machine can be user calibrated. The audible/visual alarm is factory pre-set at 19.5% O_2. Response is not significantly affected by barometric change. Power is supplied by a single 9V battery for 200 hours of continuous use.

UNIT SIZE: 14.5 x 8.9 x 3.6 cm

UNIT WEIGHT: 312 g

UNIT COST: $530.

MANUFACTURER:

SKC Inc.
334 Valley View Road,
Eighty Four, PA. 15330-9614
USA

DISTRIBUTOR:

Dur-Pro filtration, Inc.
3505 Isabelle, Suite N,
Brossard, Quebec.
J4Y 2R2

MODEL NAME:

Colour-Detector Tubes

DETECTION METHOD:

Detector Tubes

MODEL DESCRIPTION:

The Drager-style bellows pump delivers 100 cc of air per stroke. The calibrated detector tubes indicate the amount of the contaminant through absorption and colour reaction. The gas concentration is read directly from the tubes. The tubes are disposable and come in packages of 10. The gases detected are numerous as are the detection ranges for each gas.

UNIT SIZE: Pump : 17 x 9 x 6 cm
Tubes : 13 cm

UNIT WEIGHT: n/a

UNIT COST: Variable

MANUFACTURER:

SOILTEST
Environmental Division
86 Albrecht Drive,
P.O.Box 8004,
Lake Bluff, IL. 60044-8004
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Water Analyzer 2

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This reagent kit system uses a basic spectrophotometer with 8 interchangeable filters for specific wavelengths of light. The reagent packages are sold individually, so that only those tests which are needed are purchased. The % Transmittance is shown on an LCD screen and is accurate to 0.5% (1 digit). This is not truly field-portable as it is currently powered by AC only, but battery power is projected.

Over 60 tests are available for use with this system. When the appropriate add-on tests are employed, the following ranges can be expected.

ANALYTE	RANGE (mg/L)
Barium	0-400
Chlorine	0-10
Chromate	0-66
Cyanuric Acid	0-200
Phenol	0-0.75
Phosphates	0-4
Sulfite	0-70
Zinc	0-4.5

UNIT SIZE: 17.3 cm x 11.4 cm x 16 cm

UNIT WEIGHT: 3.2 kg (for central unit) plus reagents

UNIT COST: Basic Kit - $ 1189.

Reagent Packages (50- 100 tests) - na.

MANUFACTURER:

SOILTEST
Environmental Division
86 Albrecht Drive,
P.O.Box 8004,
Lake Bluff, IL. 60044-8004
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Limnology Kits

DETECTION METHOD:

Colorimetric and Titrimetric

MODEL DESCRIPTION:

These kits contain various tests for contaminants in water. The colorimetric tests employ coloured slides for comparison. The titrimetric tests use direct-reading titrators. These kits can be ordered separately or combined to make a more complete water testing package. There is an introductory kit and three reagent packages available, all of which come complete with manual, case, and accessories. Some of the tests are illustrated below:

ANALYTE	RANGE	KIT #
Ammonia	1.0-8.0 ppm	1
Chlorine	0.2-10 ppm	3
Chromate	5-40 ppm	3
Cyanide	0.05-5 ppm	3
Fluoride	0.2-1.6 ppm	2
Iron	0.5-10 ppm	3
Manganese	0.2-3.0 ppm	2
Nitrate	0.1-1.0 ppm	1
Phosphate	0.1-1.0 ppm	1
pH	3.0-10	1
Sulfate	20-200 ppm	2
Sulfide	0.2-20 ppm	1
Zinc	0-10 ppm	3

UNIT SIZE: approx. 31.5 cm x 23 cm x 18 cm

UNIT WEIGHT: 3.6 to 4.5 kg

UNIT COST: each kit - $475 - $585.
all kits - $1400.

MANUFACTURER:

SOILTEST
Environmental Division
86 Albrecht Drive,
P.O.Box 8004,
Lake Bluff, IL. 60044-8004
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Paqualab Systems

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

These instruments contain built-in incubators for coliform tests as well as reagents for other elements of water quality. The photometer is single-beam with built-in colour filters. The system contains reagents for chlorine, nitrate, nitrite, ammonia, pH, and turbidity tests as well as necessary instruction and accessories. The % Transmittance is shown on a LCD screen. The incubators can hold 25 petri dishes each for analysis of faecal and total coliform tests. The power can be supplied by direct AC mains, 12 or 24 V DC external, or rechargeable internal battery. The turbidity and pH meters are separate units and each is powered by 9 V batteries.

UNIT SIZE: Paqualab System 25 - 34 cm x 20 cm x 18 cm
Paqualab System 50 (2 incubators) - 50 x 20 x 18 cm

UNIT WEIGHT: System 25 - 16 kg
System 50 - 20 kg

UNIT COST: n/a

MANUFACTURER:

SOILTEST
Environmental Division
86 Albrecht Drive,
P.O.Box 8004,
Lake Bluff, IL. 60044-8004
USA

DISTRIBUTOR:

Hoskin Scientific, Ltd.
4210 Morris Dr.,
Burlington, Ontario.
L7L 5L6

MODEL NAME:

Air Test Systems

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

This test system is centred on an air sampling pump with an impinger. Individual test kits are added for specific contaminants. These test kits include reagents for reaction with the absorbed gas and colorimetric slides for colour comparison and quantification (measured in ppm or mg/cubic meter). The sampling pump, with built-in flowmeter, has a maximum flow of 2.5 L per minute. The pump runs on AC or 4 C cell batteries which last for up to 48 hours of use. For more immediate testing, a manual pump delivers 50 mL of air per stroke.

The individual tests currently available are:

ANALYTE	TEST	SENSITIVITY
Ammonia	APHA/Nessler's	0.72 ppm
Bromine	DPD Tablet	0.005 ppm
Cadmium	Dithizone	0.025 mg/m3
Carbon Monoxide	Silver Suspension	10 ppm
Chloride	A.S.T.M. Method	0.5 mg/m3
Chlorine	DPD Tablet	0.01 ppm
Chromic Acid	S-Diphenyl Carbazide	0.1 mg/m3
Copper	Diethyldithiocarbamate	0.05 mg/m3
Cyanide	Dye Oxidation	0.05 ppm
Fluoride	Zirconium Dye	0.1 mg/m3
Formaldehyde	Modified Schiff's	0.13 ppm
Hydrazine	p-dimethylamine Benzaldehyde	0.004 ppm
Hydrogen Peroxide	DPD Tablet	0.04 ppm
Hydrogen Sulfide	APHA Pomeroy	0.02 ppm
Iodine	DPD Tablet	0.04 ppm
Iron	Bipyridal	0.13 mg/m3
Lead	Dithizone	0.05 mg/m3
Ozone	DPD Tablet	0.02 ppm
Nitrogen Dioxide	Griess-Saltzman	0.28 ppm

Phenols	4-Aminoantipyrine	0.03 ppm
Silica	Heteropoly Blue	0.5 mg/m3
Sulfur Dioxide	West-Gaeke/Pararosaniline	0.01 ppm
Sulfuric Acid	Barium Chloride	0.5 mg/m3
Toluene Diisocyanate	Marcali	0.005 ppm
Total Oxidants	Haagen-Smit Dye	0.07 ppm

UNIT SIZE: 25.4 cm x 20.3 cm x 11.8 cm (plus reagent packages)

UNIT WEIGHT: 1.8 kg

UNIT COST: Sampling pump - $570.

Individual test kits - n/a

MANUFACTURER:

Summit Interests
P.O. Box 1128,
Lyons, Colorado.
80540

MODEL NAME:

SIP-1000

DETECTION METHOD:

Photo-ionization, Flame ionization, or Thermal conductivity detectors

MODEL DESCRIPTION:

This instrument uses interchangeable detectors in conjunction with a gas chromatography column for a versatile monitoring device. The interchangeable detector modules connect to a common reaction chamber which is an integral part of the analyzer. The unit has a LCD screen which displays the concentration of the calibrated gas. Some gases can be measured in sub-ppm levels. To monitor another gas, another calibration standard must be introduced. The detectors, due to their general sensing capability, will always respond to the same gases, regardless of the gas to which it has been calibrated. Therefore, accurate levels are displayed when only the calibrated gas is present in the sample. The column can be used to separate injected samples. As the different components elute, a maximum (peak) reading is displayed. There is no temperature control or retention time recorder. There is a 0-10V port for hook-up to a chart recorder.

The Photo Ionization module (PID) with a 10.6 eV lamp can detect such gases as benzene, toluene, xylenes, styrene, MEK, MIBK, carbon disulfide, and trichloroethylene. Basically, any gas which has an ionization energy of less than 10.6 eV will show a response. The detection limit is listed as sub-ppm levels.

The Flame Ionization module (FID) can detect hydrocarbon gases such as hexane, cyclohexane, butane, ethane, methane, etc. Use of this detector requires ignition of the hydrogen carrier gas. The detection limit using this detector is stated as 0.1 ppm.

The Thermal Conductivity module (TCD) is used for determining concentrations of more common gases such as nitrogen, oxygen, or carbon monoxide.

The internal pump maintains a 200 cc/minute flow. The carrier gas for the PI and TC detectors is Hydrogen, which doubles as the fuel for the FID. The gas is stored in the form of a metal hydride and released slowly as required for 10 hours

of use with any detector.

The power is supplied by a 12V lead acid rechargeable battery for 10 hours of continuous use. The instrument includes battery, charger, and carrying case.

UNIT SIZE: 24 x 30.5 x 14 cm

UNIT WEIGHT: 3.40 kg

UNIT COST: Base unit - $ 6350.
Modules:
TCD - $ 400.
FID - $ 400.
PID - $ 800.
Gas Cylinder (Hydride) - $ 715.

MANUFACTURER:

Thermo Environmental Instruments
8 West Forge Parkway,
Franklin, MA. 02038
USA

DISTRIBUTOR:

Canadian Applied Technology
10 Planchet Rd., Unit 21,
Concord, ON.
L4K 2C8

MODEL NAME:

Model 210 Portable Gas Chromatograph

DETECTION METHOD:

Gas chromatography

MODEL DESCRIPTION:

This portable GC is self-contained and suitable for field use. The column oven is heated isothermally to a maximum of 200C. The detectors are sold separately from the main unit. The benefit is that they are easily interchangeable between photo-ionization, electron capture, and thermal conductivity modules. The carrier gas and rechargeable battery packs are self-contained. The columns used are 1/8", maximum 20'. The sample port is heated for gas or liquid injection. The unit has no built-in recorder, so an analog 0-1 MV output must be used to carry the signal to an external recorder.

UNIT SIZE: 30.5 x 38.0 x 27.9 cm

UNIT WEIGHT: 14.5 kg

UNIT COST: $ 5900. + detector options.

MANUFACTURER:

Thermo Environmental Instruments
8 West Forge Parkway,
Franklin, MA. 02038
USA

DISTRIBUTOR:

Canadian Applied Technology
10 Planchet Rd., Unit 21,
Concord, ON.
L4K 2C8

MODEL NAME:

Model 511 Portable Gas Chromatograph

DETECTION METHOD:

Gas chromatography

MODEL DESCRIPTION:

This portable GC is self-contained and suitable for field use. It is slightly more sophisticated than the 210 in that it provides more detector and valve options for more accurate field results. As with the 210, the column oven is heated isothermally to a maximum of 200C. The detectors are sold separately from the main unit. The benefit is that they are easily interchangeable between photo-ionization, electron capture, flame ionization, flame photometric, and thermal conductivity modules. The fuel, carrier gas and rechargeable battery packs are self-contained. The columns used are 1/8", maximum 20'. The sample port is heated for gas or liquid injection. The unit has no built-in recorder, so an analog 0-1 MV output must be used to carry the signal to an external recorder.

A similar model, the 621, is similar to the 511 in detection capabilities and detector modules but is semi-portable in that carrier gas and power must be supplied externally.

UNIT SIZE: 38.0 x 45.5 x 27.9 cm

UNIT WEIGHT: 8.8 kg

UNIT COST: $ 9100. plus detector options

MANUFACTURER:

Thermo Environmental Instruments
8 West Forge Parkway,
Franklin, MA. 02038
USA

DISTRIBUTOR:

Canadian Applied Technology
10 Planchet Rd., Unit 21,
Concord, ON.
L4K 2C8

MODEL NAME:

OVM 580A

DETECTION METHOD:

Photoionization

MODEL DESCRIPTION:

This instrument can be used as a general sensor to detect most organic vapours and some inorganic gases. Calibration to a specific gas must be performed prior to testing, as the detector does not respond to any specific gas at once. The pump supplies a constant flow of 500 mL/min of sample gas. The response time is 2.0 sec to full reading. The concentration is displayed on a two-line alphanumeric LCD screen with bargraph. An audible alarm is triggered if a user-set limit has been exceeded.

The data-logging capability enables the maximum concentration to be stored, as well as 500 data points including location, time, and date for each point. The RS232 port can communicate information to a computer for data printout and/or data manipulation using IBM-PC compatible software.

The unit is powered with a rechargeable battery pack for 8 hours of continuous service. The instrument can be run by AC power while plugged into the charger (included with the instrument).

Interchangeable lamps allow detection of many hazardous gases. Some of the gases which can be detected by this instrument are:

ANALYTE	IONIZATION POTENTIAL (eV)
Acetic acid	10.66
Acetone	9.69
Benzene	9.20
1,3-Butadiene	9.03
Carbon disulfide	10.07
Cyclohexane	9.88
Diethylamine	8.01
Hexane	10.22
Hydrogen sulfide	10.46
Methanol	10.83
Nitric oxide	9.25

Styrene	8.40
Toluene	8.82
Vinyl chloride	9.99

UNIT SIZE: 16.5 x 14 x 22.8 cm

UNIT WEIGHT: 2.95 kg

UNIT COST: $ 6200.

MANUFACTURER:

Thermo Environmental Instruments
8 West Forge Parkway,
Franklin, MA. 02038
USA

DISTRIBUTOR:

Canadian Applied Technology
10 Planchet Rd., Unit 21,
Concord, ON.
L4K 2C8

MODEL NAME:

OVM/GC 590

DETECTION METHOD:

Photoionization

MODEL DESCRIPTION:

This instrument can be used in two ways. The survey mode (OVM mode) is used to locate `hot spots' and consists of a non-quantitative screening of vapours below a certain photo-ionization energy, much the same as the Model 580A. The GC mode is then employed to identify and quantify the components of the desired gas sample by comparing retention times and peak heights to a reference standard. Any peaks in the sample run which do not appear in the reference standard run immediately prior will not be quantified. A self-contained printer-plotter will plot chromatographs and produce hard-copy reports. The 590 operates for over 8 hours continuously without having to recharge batteries or carrier gas cylinder.

UNIT SIZE: 14 x 21.5 x 37 cm

UNIT WEIGHT: 6.8 kg

UNIT COST: $ 10900.

MANUFACTURER:

Thermo Environmental Instruments
8 West Forge Parkway,
Franklin, MA. 02038
USA

MODEL NAME:

Series 700 Total Hydrocarbon Analyzer

DETECTION METHOD:

Flame ionization

MODEL DESCRIPTION:

These instruments monitor total hydrocarbons in air. The detection chamber and LCD meter are contained in the hand-held probe. Attenuation, range, and ignition are all controlled directly from the probe. The rest of the unit, which is carried by a shoulder strap, contains the hydrogen supply and rechargeable battery pack. Hydrogen pressure, alarm level, and span settings are controlled from the main unit. This unit can be fully portable for up to 8 hours of use in the field. It can also be connected to external AC power and hydrogen supplies for extended use. The sensor is calibrated to methane but virtually any hydrocarbon-based organic compound will be detected. Quantification of compounds other than methane would require the application of a response factor to the reading. The audio alarm on the main unit is user-adjustable.

Model 710 measures in the range of 0 - 200 or 0 - 2000 ppm. Model 712 measures in the range of 0 - 2000 or 0 - 20000 ppm.

UNIT SIZE: 61 x 36.8 x 17 cm (carrying case)

UNIT WEIGHT: 6.4 kg

UNIT COST: $ 7600. for Model 710

$ 7900. for Model 712

MANUFACTURER:

US Industrial Products Co., Inc.
13905 Artesia Blvd.,
Cerritos, CA. 90701
USA

MODEL NAME:

USI Portables

DETECTION METHOD:

Solid State Sensors

MODEL DESCRIPTION:

These units are compact, one gas detectors. The analog scale will display appropriate ppm or %LEL readings as applicable. The range can be customized to the user's needs. The audio/visual alarm can be preset to specific danger levels. The sensor can operate in temperatures of -20C to +65C and has a life expectancy of 10 years (warrantied for 3 years). Each unit comes with a carrying case and a battery charger to supply the NiCad batteries with up to 12 hours of continuous use.

UNIT SIZE: 11 cm x 19 cm x 7 cm

UNIT WEIGHT: 0.9 kg

UNIT COST: $895 US for CO, CH_4, H_2S, Combustible Gases, Ethylene Oxide, Ammonia, Solvents, Hydrocarbons, or Diesel/Gasoline detector.

$995 US for Freon or Sulfur Dioxide detector.

MANUFACTURER:

Westinghouse Bio-Analytic Systems
Waltz Mill Site,
Madison, PA. 15663-0286
USA

MODEL NAME:

Hydrocarbon Sensor

DETECTION METHOD:

Solid-state semiconductor sensor

MODEL DESCRIPTION:

This self-contained unit provides quantitative measurement of hydrocarbons in water. The solid-state sensor measures the dielectric constant of the sample to determine 1 to 50 ppm of aliphatic hydrocarbons. The probe can be immersed in the desired area for testing without actually taking a measured sample. There is no response to cyclic hydrocarbons, halogenated hydrocarbons, or other organic compounds due to the differences in the dielectric constant. The sensor responds within a few seconds to concentrations of hydrocarbons but may take up to 8 minutes to read 90% of the concentration, if the concentration is steady. Results are displayed on a LCD screen and simultaneously stored. The results can be relayed to a computer system via an RS-232 port. The power is supplied by rechargeable batteries.

UNIT SIZE: **12 x 20 x 30 cm**

UNIT WEIGHT: **2.3 kg**

UNIT COST: **$ 5000 US.**

MANUFACTURER:

Westinghouse Bio-Analytic Systems
Waltz Mill Site,
Madison, PA. 15663-0286
USA

MODEL NAME:

Rapid Screening Bio-assays

DETECTION METHOD:

Colorimetric

MODEL DESCRIPTION:

These 3 bio-assay kits are active to either carbofuran, pentachlorophenol or triazine. The principle involves enzyme-analyte addition to the aqueous sample. The enzyme-analyte conjugate competes for bonding sites with the analyte in the sample. After a five minute digestion, the unreacted reagent is rinsed away and indicator reagents are added. The resulting colour is inversely proportional to the concentration of the analyte. The concentration can best be calculated using a spectrophotometer but visual determination is possible. The tests are accurate in the 1-100 ppb range. The triazine kit includes materials and reagents sufficient for 20 tube assays. The pentachlorophenol and carbofuran tests have materials and reagents for 40 well assays (5 strips of 8 wells).

UNIT SIZE: **n/a**

UNIT WEIGHT: **n/a**

UNIT COST: **$ 150 per kit**

MANUFACTURER:

XonTech, Inc.
6862 Hayvenhurst Avenue,
Van Nuys, CA. 91406
USA

DISTRIBUTOR:

Nortech Control Equipment
135 - 4 The West Mall,
Etobicoke, Ontario.
M9C 1C2

MODEL NAME:

Toxic Vapor Monitor Model GC-810

DETECTION METHOD:

Gas Chromatography

MODEL DESCRIPTION:

This portable GC offers many choices for the specific needs of the user. Interchangeable ECD or PID detectors can be easily employed. The columns used are 1/8" OD (length and packing are variable). The internal microprocessor controls the automatic sample injection, the oven temperature (to 200C), and the identification and integration of chromatograph peaks. The flow rate of the carrier gas (He or N_2) can be adjusted. The pump can supply 100 cc/min. This instrument automatically calibrates and re-zeroes regularly. An analog meter shows approximate gas levels at time of sampling. Built-in alarms warn the user if a dangerous situation exists. A printed format is provided at the end of each run describing the peak retention times and concentrations. External jacks are provided for a chart recorder (for chromatograph) and/or RS232 computer interface. The power for the unit is supplied by a rechargeable 12 V gel-cell (included) or AC 110 or 220 V supply.

UNIT SIZE: 53.5 cm x 45.5 cm x 20.3 cm

UNIT WEIGHT: 20.5 kg

UNIT COST: $ 11900. US

DETECTION METHODS EMPLOYED IN PORTABLE ANALYZERS

Code	Description
AA	**Atomic Absorption** - absorption of precise wavelengths of ultra-violet light which correspond to the spectral lines of the specific contaminant are compared to background values.
CB	**Catalytic Bead Sensor** - the incoming gases are oxidized by heated beads of silica gel containing alumina. See Catalytic Oxidation.
CL	**Chemiluminescence** - photometric techniques are used to detect emissive radiation stimulated by a chemical interaction.
CO	**Catalytic Oxidation** - A small amount of catalyst, usually platinum wire, is used to cause ionization of organic materials. Susceptible to poisoning from acids, lead, silica, and possibly other heavy metals. Generally non-specific, however some selectivity can be achieved using specific operating temperatures of the filament.
COL	**Colorimetric** - a chemical reaction with the contaminant results in a coloured compound being formed. The concentration may be determined by intensity of the colour change or by the colour staining of a measurable volume.
CP	**Controlled Potential Electrolysis** - works as does an electrolytic cell, but is able to separate individual metals from solution by varying the applied voltage to correspond with the electrode potentials of the metals.
EC	**Electrochemical Cell** - consists of a membrane permeable to the specific gases for analysis. Within the cell, a chemical reaction involving the consumption of the specific gases provides a measurable electronic charge.
EL	**Electrolytic Sensor** - specific electrolytes are required for each substance. Within the electrolyte, the compounds dissociate and the ions migrate to electrically charged terminals. The concentration is determined by the measurement of the current generated by charged ions at the terminals.
FC	**Fuel Cell** - a galvanic cell in which fuels are oxidized by air or oxygen. The free energy (of oxidation) released is measured and related to the concentration of the oxidant.

FI **Flame Ionization** - Uses a hydrogen flame to combust and ionize organic compounds. Can be used in the detection range of 0.5 ppm to 10% by volume. Since methane occurs naturally in air (up to 5 ppm), there is some correction which must be made - limiting the lower limit of detection. May be affected by particulates and dust, but is not affected by water vapour or carbon and nitrogen oxides.

GC **Gas Chromatography** - resolves multi-compound mixtures into distinct and identifiable components. Determination of the limits of detection for different gases is dependant on the detector. Each unit is used with one or more of the following detectors: Photo-ionization, Flame ionization, Electron capture, Thermal conductivity, Flame photometric.

GF **Gold Film Sensor** - absorbs specific gas particles as they flow through the film. The film has an electric current which is altered by the presence of the particles due to change in conductivity. A greater concentration of gas particles leads to a greater change in the resistance of the film.

IR **Infrared (dispersive)** - measures infrared absorbance of chemical bonds in many organic and inorganic compounds. A select band of infrared energy corresponding to the absorption band of the designated gas is directed towards the sample using a diffracting prism.

NDIR **Infrared (non-dispersive)** - measurement follows the same method as dispersive infrared. In this case, the desired wavelength of energy is controlled by either a filter or by the detector itself.

P **Polarography** - automatic electroanalysis of an aqueous sample by quantitative addition of an electrolytic solution (usually mercury). Cells of this type must be recharged periodically.

PELL **Pellistor Type Sensor** - a type of solid state sensor which measures the heat of reaction produced by the oxidation of a gas on the surface of a catalytic solid. Not generally as sensitive as other solid state sensors.

PI **Photo-ionization** - ultra-violet light provides ionization energy sufficient for most organic gases. Varying sensitivities can be achieved through the use of lamps of different power.

SC **Semi-conductor Sensor** - measures conductivity change which results from a) oxygen on the surface of the sensor reacting with reducing gases or b) oxidizing gases such as water, hydrogen sulfide, and sulfur dioxide adsorb onto the semi-conductor and relese a measurable electronic charge.

SS **Solid State Sensor** - measures the change in electrical conductivity of a semi-conductor material produced by the movement of charge carriers (gas molecules) at the surface. Sensitive but generally unspecific, however by doping the semi-conductor material, the sensitivity to certain gases can be enhanced.

SV **Stripping Voltammetry** - metals are plated onto an electrode with a negative potential. The voltage is then increased (negative to positive) gradually. Each metal is returned into solution (stripped) in succession as the electrode is reached. As each metal is stripped, the current generated is proportional to the concentration.

T **Titrimetric** - addition of a measured amount of a reagent to the liquid sample results in a shift of some chemical parameter. The shift corresponds to a visible endpoint (usually a colour change).

TC **Thermal Conductivity Cell** - the sample gas is passed over wires with current flow. Resistance change in the wires is measured with reference to a standard gas. Useful for detecting only high concentrations of gases since water vapour and carbon dioxide in the air interfere.

UV **Ultra-violet Photometer** - see also AA. Common for mercury analysis; ultra-violet lamp is specific to mercury's narrow radiation band. Detection by a photo-resistive element causes a measurable electrical shift.

XRF **X-Ray Fluorescence** - radioactive sources are used as a source of x-ray radiation. The detector receives reflected energy emmissions in distinct wavelengths characteristic of the electron energy levels of the different atom(s) present in the sample.

CHEMICAL ABBREVIATIONS USED IN THIS SECTION

Br2 -	Bromine
BTEX -	Benzene, Toluene, Ethylbenzene, Xylenes
CH4 -	Methane
Cl2 -	Chlorine
CN -	Cyanide
CO -	Carbon Monoxide
CO2 -	Carbon Dioxide
COMB -	Combustible/Explosive gases
HCl -	Hydrochloric Acid
HCN -	Cyanuric Acid/Hydrogen Cyanide
HF -	Hydrofluoric Acid
H2O2 -	HydrogenPeroxide
H2S -	Hydrogen Sulfide
NH3 -	Ammonia
NO -	Nitrous Oxide
NO2 -	Nitroden Dioxide
O2 -	Oxygen
RCOR -	Ketones
RHO -	Aldehydes
R-NH2 -	Amines
R-OH -	Alcohols
SO2 -	Sulfur Dioxide
TOX -	Organic Solvents
-NO2 -	Nitrites
-NO3 -	Nitrates

MANUFACTURER	MODEL NAME	DETECTION METHOD	MEDIUM	COMPOUNDS DETECTED
ADC	ADC PM2	NDIR	A	CO, CH_4, CO_2
AIM	AIM 3000	EC,SC,FC	A	COMB, TOX, O_2, CO_2, H_2S
AIM	AIM 815-Z	SC	A	COMB, TOX
Anacon	Ambient Air Monitors	EC	A	HCl, Br_2, HF, SO_2, HCN, H_2S, Cl_2, Boron trichloride
Arizona	Jerome 411	GF	A	Mercury
Arizona	Jerome 621	GF	A	H_2S
Armstrong	AMC CD-1	NDIR	A	CO_2
Armstrong	AMC-1101	EC	A	CO
Armstrong	AMC-1102	EC	A	O_2
Armstrong	AMC-1103	EC	A	H_2S
Armstrong	AMC-3003	EC,PELL	A	COMB, O_2, CO, H_2S
Bacharach	Sniffer 300 Series	CB,EC	A	COMB, O_2
Bacharach	Sniffer 500 Series	CB,EC	A	COMB, O_2, H_2S, CO
CEA	Riken AS-7	EC	A	Arsine
CEA	Riken BH-7	EC	A	Diborane
CEA	Riken CL-7	EC	A	Cl_2
CEA	Riken CO-7	EC	A	CO
CEA	Riken HL-7	EC	A	HCl
CEA	Riken HS-7	EC	A	H_2S
CEA	Riken ND-7	EC	A	NO_2
CEA	Riken NO-7	EC	A	NO
CEA	Riken PH-7	EC	A	Phosphine
CEA	Riken RI-411	NDIR	A	CO_2
CEA	Riken SH-7	EC	A	Silane
CEA	Riken SO-7	EC	A	SO_2
CEA	TGM 555	COL	A	NH_3, Cl_2, Formaldehyde, Hydrazine, HCl, HCN, HF, H_2S, NO_2, NO, Phenol, Phosgene, SO_2, H_2O_2, Mercaptans, Total oxidants
Chemetrics	Quanti-Chlor test	T	O	Cl_2
Chemetrics	System 1000	COL	W	NH_3, Cl_2, Cr, Cu, CN, Formaldehyde, Glycol, Hydrazine, H_2O_2, Fe, $-NO_3$, $-NO_2$, O_2, Phenol, Phosphates, Sulfides, Zn
Chemtronics	PDV 2000	SV	W,S,O	trace metals - As, Sb, Bi, Cd, Cu, Au, Pb, Hg, Zn, Mn, Se, Sn
Crowcon	Gasalarm Type 84GA	PELL	A	COMB
Crowcon	Gascheck	PELL	A	COMB
Crowcon	Oxytone	EC	A	O_2
Crowcon	Series 4000-CO	EC	A	CO
Crowcon	Series 4000-CL	EC	A	Cl_2
Crowcon	Series 4000-EO	EC	A	Ethylene Oxide
Crowcon	Series 4000-FM	EC	A	Formaldehyde
Crowcon	Series 4000-HCL	EC	A	HCl
Crowcon	Series 4000-HN	EC	A	HCN
Crowcon	Series 4000-HS	EC	A	H_2S
Crowcon	Series 4000-HZ	EC	A	Hydrazine
Crowcon	Series 4000-ND	EC	A	Nitrogen Dioxide
Crowcon	Series 4000-NO	EC	A	Nitrous Oxide
Crowcon	Series 4000-SO	EC	A	SO_2
Crowcon	Oximeter 88OX	EC	A	O_2

Crowcon	Toximeter 88TX/CL	EC	A	Cl2
Crowcon	Toximeter 88TX/CO	EC	A	CO
Crowcon	Toximeter 88TX/HN	EC	A	HCN
Crowcon	Toximeter 88TX/HS	EC	A	H2S
Crowcon	Toximeter 88TX/ND	EC	A	Nitrogen Dioxide
Crowcon	Toximeter 88TX/SO	EC	A	SO2
Crowcon	Triple Type 84TR	PELL, EC	A	COMB, O2, H2S
Crowcon	Triple Type CO84TR	PELL, EC	A	COMB, O2, CO
Dynamation	Combo 434	EC	A	COMB, O2, CO, H2S
Dynamation	Combo 444	EC	A	COMB, TOX, O2, H2S, CO, SO2, Cl2
Dynamation	Combo II	EC	A	COMB, O2
Dynamation	Monogard 101	EC	A	O2
Dynamation	Monogard 103	EC	A	H2S
Dynamation	Monogard 104	EC	A	CO
Dynamation	Monogard 106	EC	A	NO2
Dynamation	Monogard 107	EC	A	SO2
Dynamation	Monogard 108	EC	A	Cl2
Ecolyzer	Ecolyzer 100 Series	EC	A	CO, H2S, O2
Ecolyzer	Ecolyzer 200 series	EC	A	CO, H2S, O2
Ecolyzer	Ecolyzer 2000 Series	EC	A	CO, H2S, O2, NO2, SO2, Nitric Oxide
Ecolyzer	Ecolyzer 60-400	CO,P	A	COMB, O2
Enmet	Quad-400	EC	A	COMB, O2, CO, H2S
Enmet	Toxic Gas Detector kit	COL	A	all priority list gases and vapours
Enmet	Tritector CGS-100SP	EC,FC	A	COMB, TOX, O2
Enmet	Tritector CGS-20M	EC	A	COMB, TOX, O2
Enmet	Tritector CGS-80R	EC	A	COMB, TOX, O2
Foxboro	Miran 101	IR	A	all priority list gases and vapours
Foxboro	Miran 103	IR	A	all priority list gases and vapours
Foxboro	Miran 1A	IR	A	all priority list gases and vapours
Foxboro	Miran 1B	IR	A	all priority list gases and vapours
Foxboro	OVA 108	FI	A	COMB, BTEX, TOX, R-OH
Foxboro	OVA 128	FI	A	COMB, BTEX, TOX, R-OH
Foxboro	OVA 88	FI	A	COMB, BTEX, TOX, R-OH
Gastec	Detector tubes	COL	A	all priority list gases and vapours
Gastech	CO-82	EC	A	CO
Gastech	GasTechtor 4700	EC	A	Cl2, F, NH3, SO2, HCl, HF, HCN, H2S
Gastech	GasTechtor series	EC,CO	A	COMB, O2, H2S, CO
Gastech	GP-204	CO	A	COMB
Gastech	GP-82	CO	A	COMB
Gastech	GX Series	EC,CO	A	COMB, O2, H2S, CO
Gastech	HS-82	EC	A	H2S
GfG	Exotector	CO,TC	A	COMB
GfG	Microco	EC	A	CO
GfG	Microtox	EC	A	H2S
GfG	Polytector series	EC	A	COMB, O2, H2S, CO
GfG	Vabotector	EC	A	COMB, O2, H2S, CO, CH4, CO2
GMD	Autostep	COL	A	Phosgene, Hydrazines, Isocyanates, HF, HCl
Hach	DREL/2000	COL,T	W	Al, As, Ba, B, Br2, Cl2, Cr, Cu, CN, Formaldehyde, Mn, NH3, -NO3, Phenol, Phosphorus, Sulfate Chlorides, Chlorine dioxide, HCN, F, Hydrazine, I, Fe, Pb, -NO2, Sulfides, Zn

Hach	DREL/2000 (Soils)	COL,T	S	NH3, -NO3, Phosphorus, Potassium
Hach	Individual test kits	COL,T	W	NH3, Chlorides, Cl2, Cr, Cu, CN, Fluoride, Formaldehyde, Hydrazine, H2O2, Fe, Mn, -NO3, -NO2, Phosphates, Sulfates, Sulfites, Zn
Hanby	Field test kit	COL	W,S	BTEX, Gasoline, PCBs
Heath Consultants	Detecto-Pak II M	FI	A	COMB
Heath Consultants	EI-4	SC	A	Ethane, Natural gas
Heath Consultants	GMI Gasurveyor 4	PELL	A	COMB
HNU	Field portable XRF	XRF	W,S	all elements from Na through to U
HNU	HW-101, PI-101, GP-101	PI	A	Acetic acid, R-OH, RHO, RCOR, BTEX, TOX, NH3, CO2, H2S, Acetic anhydride, Butadiene, Butylene R-NH2, Cyclohexane, Dimethyl ether, Ethylene dibromide, Hexane, Methyl methacrylate Morpholine, Propylene, Propylene glycol, Styrene, Turpentine, Vinyl acetate, Vinyl chloride
HNU	Model 311	GC	A,W	all priority list gases and vapours
ISD	CD210	EC	A	CH4
ISD	CMX270	EC	A	O2, CH4, CO
ISD	CMX271	EC	A	COMB, O2, CO
ISD	CO260	EC	A	CO
ISD	HMX271	EC	A	COMB, O2, H2S
ISD	HS267	EC	A	H2S
ISD	LD220	EC	A	COMB
ISD	MX240	EC	A	O2, CH4
ISD	MX241	EC	A	COMB, O2
ISD	OX231	EC	A	O2
ISD	SO261	EC	A	SO2
IST	AG5000	SS	A	all priority list gases and vapours
IST	AG5100	SS	A	all priority list gases and vapours
IST	AG6000	SS	A	COMB, H2S
Lamotte	AM-61	COL	A	NH3, CO, Cl2, CN, F, H2S, Lead, NO2, SO2, Toluene diisocyanate, Total oxidants
Lamotte	MTRL colorimeter	COL	W	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, - NO3, -NO2, Phenol, Phosphates, Sulfides, Zn
Lamotte	Octa-slide	COL	W	NH3, Cl2, Cr, Fe, -NO3, Phosphates, Sulfides
Lamotte	STC-AL	COL	W	Aluminum
Lamotte	STC-BR	COL	W	Br
Lamotte	STC-CD	COL	W	Chlorine dioxide
Lamotte	STC-CL	COL	W	Cl2
Lamotte	STC-CR	COL	W	Cr
Lamotte	STC-CY	COL	W	HCN
Lamotte	STC-FE	COL	W	Fe
Lamotte	STC-FL	COL	W	Fluoride
Lamotte	STC-HS	COL	W	Sulfide
Lamotte	STC-HZ	COL	W	Hydrazine
Lamotte	STC-IO	COL	W	Iodine
Lamotte	STC-MN	COL	W	Manganese
Lamotte	STC-NA	COL	W	Nitrates
Lamotte	STC-NH	COL	W	NH3
Lamotte	STC-NI	COL	W	Nitrites
Lamotte	STC-PHR	COL	W	Phosphates
Lamotte	STC-PN	COL	W	Phenols
Lamotte	STC-SU	COL	W	Sulfates
Lamotte	TRL-05	COL,T	W	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, -NO2, Phenols, Phosphates, Sulfides, Zn, CO2

Lamotte	TRL-12	COL,T	S	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, Phenols, -NO2, Phosphates, Sulfides, Zn, Ca, Mg, Chlorides
Lovibond	Lovibond 2000	COL	W	used with any appropriate test in water
Lovibond	Minikits	T	W	Chlorides, Cr, HCN, -NO2, Organophosphonate, Sulfates, Sulfites
Lovibond	PC 10	COL	W	Aluminum, Br, Cl2, HCN, Fe
Lovibond	PC 100	COL	W	Aluminum, NH3, Br, Cl2, Chlorides, Cr, HCN, Fe, Mn, -NO3, -NO2, Phosphates, Sulphates, Zn
Lumidor	Gasponder I	EC	A	COMB
Lumidor	Gasponder II	EC	A	COMB, O2
Lumidor	Gasponder III	EC	A	CH4, CO, H2S, O2
Lumidor	Gasponder IV	EC	A	CH4, CO, H2S, O2
Lumidor	MPU-4	EC	A	CH4, CO, H2S, O2
Lumidor	Scen-trio	EC	A	COMB, H2S, CO, Cl2, O2
MAST	Series 724	EC	A	Cl2, Br, Acid gases
MDA	Formaldemeter Mark II	FC	A	Formaldehyde
MDA	Monitox	EC	A	CO, Cl2, HCN, H2S, O2, SO2, Phosgene
MDA	TLD-1	COL	A	NH3, Br, Cl2, Diisocyanates, Hydrazine, HCN, H2S, HCl, HF, NO2, SO2, Nitric acid, Phosgene, Sulfuric acid, Arsine, Diborane
Microsensor	M200	GC	A	all priority list gases and vapours
MSA	Explosilarm 100	CO	A	COMB
MSA	Models 20,30,40	CO	A	COMB
MSA	Samplair kit	COL	A	all priority list gases and vapours
National Draeger	Detector tubes	COL	A	all priority list gases and vapours
National Draeger	Multiwarn	CO, EC	A	COMB, O2, CO, H2S
National Draeger	Triowarn	EC	A	CO, H2S, O2
Neotronics	Exotox series	EC	A	COMB, O2, CO, H2S, SO2
Neotronics	Neotox series	EC	A	O2, CO, H2S, SO2, Cl2
NOVA	Nova 370	EC,TC	A	O2, CO, CO2
NOVA	Nova 400	EL	A	O2
NOVA	Nova 420	EL	A	CO2
NOVA	Nova 430	EL	A	HF
NOVA	Nova 440	EL	A	Cl2
NOVA	Nova 450	EL	A	H2S
NOVA	Nova 460	EL	A	SO2
NOVA	Nova 470	EL	A	HCN
NOVA	Nova 480	EL	A	CO
NOVA	Nova 490	EL	A	HCl
NOVA	Nova 495	EL	A	Chlorinated hydrocarbons
NOVA	Nova 7550P2	IR	A	CO, Hydrocarbons
Oldham France S.A.	OX 11	EC	A	O2
Oldham France S.A.	TX 11	EC	A	CO, H2S, SO2
Outokumpu	X-MET 840	XRF	W,S	all elements from Aluminum to Uranium (in atomic number)
Outokumpu	X-MET 880	XRF	W,S	all elements from Aluminum to Uranium (in atomic number)
Oxford	Lab-X 1000	XRF	W,S	all elements from Aluminum to Uranium (in atomic number)
Photovac	Photovac 10S	GC	A,W	COMB, BTEX, TOX, ROH, RCOR, RHO, Ethylene oxide, Arsine, Phosphine, H2S, Glycol ethers, Cyclohexane
Photovac	TIP, MicroTIP	PI	A	Acetic acid, R-OH, RHO, RCOR, BTEX, TOX, NH3, H2S, Butadiene, Butylene R-NH2, Cyclohexane, Dimethyl ether, Ethylene dibromide, Hexane, Morpholine, Propylene, Propylene glycol, Styrene, Turpentine, Vinyl acetate, Vinyl chloride
QEL	Qx Series	EC	A	COMB, CO, O2, H2S, HCN, HCl, Cl2, NO2, NO, SO2, Phosphine
Scintrex	HGG-3	AA	A	Mercury

Scintrex	LMA-3	CL	A	NO2
Scott	Scott-Alert	EC	A	CH4, O2, H2S, CO
Sensidyne	HazMat kit	COL	A	all priority list gases and vapours
Sensidyne	Mini monitor	EC	A	CO, H2S, O2, NO2, SO2
Sensidyne	SS 2000	EC	A	NH3, Cl2, HCN, SO2, CO2, H2S, HF, HCl, F, Br2
Sensidyne	SS 4000	CP	A	Phosphine, Arsine, Silane
Sentex	Scentograph	GC	A,W	all priority list gases and vapours
Sentex	Scentor	GC	A,W	all priority list gases and vapours
Shawcity	MVI	UV	A	Mercury
SKC	Color-detector tubes	COL	A	all priority list gases and vapours
SMC	Sierra 55	EC	A	O2
Soiltest	Air test systems	COL	A	NH3, Br2, Cd, CO, Chlorides, Cl2, Chromic acid, CN, F, Formaldehyde, Hydrazine, H2O2, H2S, Iodine, Fe, Lead, NO2, Phenol, SO2, H2SO4, Toluene diisocyanate, Total oxidants
Soiltest	Limnology kit 1	COL,T	W	NH3, -NO3, Phosphates, Sulfides
Soiltest	Limnology kit 2	COL,T	W	Fluoride, Manganese, Sulfates
Soiltest	Limnology kit 3	COL,T	W	Cl2, Cr, CN, Fe, Zn
Soiltest	Paqualab	COL	W	NH3, Cl2, -NO3, -NO2
Soiltest	Water Analyzer 2	COL	W	Barium, Br2, Cl2, Chlorides, Cr, Cu, CN, HCN, F, Hydrazine, H2O2, I, Fe, -NO3, -NO2, Phenol, Phosphates, Sulfates, Sulfites, Zn
Summit Interests	SIP-1000	PI,FI,TC	A	all priority list gases and vapours
Thermo	Model A210	GC	A,W	all priority list gases and vapours
Thermo	Model A511	GC	A,W	all priority list gases and vapours
Thermo	OVM 580A	PI	A	COMB, BTEX, R-OH, RCOR, RHO, NH3, R-NH2, H2S, Anhydrides, Acetic acid, Arsine, Vinyl chloride
Thermo	OVM/GC 590	PI, GC	A,W	COMB, BTEX, R-OH, RCOR, RHO, NH3, R-NH2, H2S, Anhydrides, Acetic acid, Arsine, Vinyl chloride
Thermo	Series 700	FI	A	COMB, BTEX, TOX, R-OH
USI	USI portables	SS	A	COMB, CO, H2S, Ethylene oxide, NH3, TOX, Gasoline, Freon, SO2, CH4, Hydrocarbons
Westinghouse	Hydrocarbon Sensor	SS	W	Aliphatic hydrocarbons
Westinghouse	Bio-assays	COL	W	Triazine, Pentachlorophenol, Carbofuran
Xontech	GC-810	GC	A,W	all priority list gases and vapours

MEDIUM	DETECTION METHOD	MANUFACTURER	MODEL NAME	COMPOUNDS DETECTED
A	AA	Scintrex	HGG-3	Mercury
A	CB	Bacharach	Sniffer 500 Series	COMB, O2, H2S, CO
A	CB	Bacharach	Sniffer 300 Series	COMB, O2
A	CL	Scintrex	LMA-3	NO2
A	CO	Ecolyzer	Ecolyzer 60-400	COMB, O2
A	CO	Gastech	GasTechtor series	COMB, O2, H2S, CO
A	CO	Gastech	GP-204	COMB
A	CO	Gastech	GP-82	COMB
A	CO	Gastech	GX Series	COMB, O2, H2S, CO
A	CO	GfG	Exotector	COMB
A	CO	MSA	Explosilarm 100	COMB
A	CO	MSA	Models 20,30,40	COMB
A	CO	National Draeger	Multiwarn	COMB, O2, CO, H2S
A	COL	CEA	TGM 555	NH3, Cl2, Formaldehyde, Hydrazine, HCl, HCN, HF, H2S, NO2, NO, Phenol, Phosgene, SO2, H2O2, Mercaptans
A	COL	Enmet	Toxic Gas Detector kit	Phenol, Phosgene, SO2, H2O2, Mercaptans, Total oxidants
A	COL	Gastec	Detector tubes	all priority list gases and vapours
A	COL	GMD	Autostep	all priority list gases and vapours
A	COL	Lamotte	AM-61	Phosgene, Hydrazines, Isocyanates, HF, HCl
A	COL	MDA	TLD-1	NH3, CO, Cl2, CN, F, H2S, Lead, NO2, SO2, Toluene diisocyanate, Total oxidants
A	COL	MSA	Samplair kit	NH3, Br, Cl2, Diisocyanates, Hydrazine, HCN, H2S, HCl, HF, NO2, SO2, Nitric acid, Phosgene, Sulfuric acid, Arsine, Diborane
A	COL	National Draeger	Detector tubes	all priority list gases and vapours
A	COL	Sensidyne	HazMat kit	all priority list gases and vapours
A	COL	SKC	Color-detector tubes	all priority list gases and vapours
A	COL	Soiltest	Air test systems	all priority list gases and vapours
A	CP	Sensidyne	SS 4000	NH3, Br2, Cd, CO, Chlorides, Cl2, Chromic acid, CN, F, Formaldehyde, Hydrazine, H2O2, H2S, Iodine, Fe, Lead, NO2, Phenol, SO2, H2SO4, Toluene diisocyanate, Total oxidants
A	EC	AIM	AIM 3000	Phosphine, Arsine, Silane
A	EC	Anacon	Ambient Air Monitors	COMB, TOX, O2, CO2, H2S
A	EC	Armstrong	AMC-1101	HCl, BR2, HF, SO2, HCN, H2S, CL2, Boron trichloride
A	EC	Armstrong	AMC-1102	CO
A	EC	Armstrong	AMC-1103	O2
A	EC	Armstrong	AMC-3003	H2S
A	EC	Bacharach	Sniffer 500 Series	COMB, O2, CO, H2S
A	EC	Bacharach	Sniffer 300 Series	COMB, O2, H2S, CO
A	EC	CEA	Riken AS-7	COMB, O2
A	EC	CEA	Riken BH-7	Arsine
A	EC	CEA	Riken CL-7	Diborane
A	EC	CEA	Riken CO-7	Cl2
A	EC	CEA	Riken HL-7	CO
A	EC	CEA	Riken HS-7	HCl
A	EC	CEA	Riken ND-7	H2S
A	EC	CEA	Riken NO-7	NO2
A	EC	CEA	Riken PH-7	NO
A	EC	CEA	Riken SH-7	Phosphine
A	EC	CEA	Riken SO-7	Silane
A	EC	Crowcon	Oxytone	SO2
				O2

A	EC	Crowcon	Series 4000-CO	CO
A	EC	Crowcon	Series 4000-CL	Cl2
A	EC	Crowcon	Series 4000-EO	Ethylene Oxide
A	EC	Crowcon	Series 4000-FM	Formaldehyde
A	EC	Crowcon	Series 4000-HCL	HCl
A	EC	Crowcon	Series 4000-HN	HCN
A	EC	Crowcon	Series 4000-HS	H2S
A	EC	Crowcon	Series 4000-HZ	Hydrazine
A	EC	Crowcon	Series 4000-ND	Nitrogen Dioxide
A	EC	Crowcon	Series 4000-NO	Nitric Oxide
A	EC	Crowcon	Series 4000-SO	SO2
A	EC	Crowcon	Toximeter 88OX	O2
A	EC	Crowcon	Toximeter 88TX/CO	CO
A	EC	Crowcon	Toximeter 88TX/CL	Cl2
A	EC	Crowcon	Toximeter 88TX/HN	HCN
A	EC	Crowcon	Toximeter 88TX/HS	H2S
A	EC	Crowcon	Toximeter 88TX/ND	Nitrogen Dioxide
A	EC	Crowcon	Toximeter 88TX/SO	SO2
A	EC	Crowcon	Triple Type 84TR	COMB, O2, H2S
A	EC	Crowcon	Triple Type CO84TR	COMB, O2, CO
A	EC	Dynamation	Combo 434	COMB, O2, CO, H2S
A	EC	Dynamation	Combo 444	COMB, TOX, O2, H2S, CO, SO2, Cl2
A	EC	Dynamation	Combo II	COMB, O2
A	EC	Dynamation	Monogard 101	O2
A	EC	Dynamation	Monogard 103	H2S
A	EC	Dynamation	Monogard 104	CO
A	EC	Dynamation	Monogard 106	NO2
A	EC	Dynamation	Monogard 107	SO2
A	EC	Dynamation	Monogard 108	Cl2
A	EC	Ecolyzer	Ecolyzer 100 Series	CO, H2S, O2
A	EC	Ecolyzer	Ecolyzer 200 series	CO, H2S, O2
A	EC	Ecolyzer	Ecolyzer 2000 Series	CO, H2S, O2, NO2, SO2, Nitric oxide
A	EC	Enmet	Quad-400	COMB, O2, CO, H2S
A	EC	Enmet	Tritector CGS-100SP	COMB, TOX, O2
A	EC	Enmet	Tritector CGS-20M	COMB, TOX, O2
A	EC	Enmet	Tritector CGS-80R	COMB, TOX, O2
A	EC	Gastech	CO-82	CO
A	EC	Gastech	GasTechtor 4700	Cl2, F, NH3, SO2, HCl, HF, HCN, H2S
A	EC	Gastech	GasTechtor series	COMB, O2, H2S, CO
A	EC	Gastech	GX Series	COMB, O2, H2S, CO
A	EC	Gastech	HS-82	H2S
A	EC	GfG	Microco	CO
A	EC	GfG	Microtox	H2S
A	EC	GfG	Polytector series	COMB, O2, H2S, CO
A	EC	GfG	Vabotector	COMB, O2, H2S, CO, CH4, CO2
A	EC	ISD	CD210	CH4
A	EC	ISD	CMX270	O2, CH4, CO
A	EC	ISD	CMX271	COMB, O2, CO
A	EC	ISD	CO260	CO
A	EC	ISD	HMX271	COMB, O2, H2S
A	EC	ISD	HS267	H2S

A	EC	ISD	LD220	COMB
A	EC	ISD	MX240	O2, CH4
A	EC	ISD	MX241	COMB, O2
A	EC	ISD	OX231	O2
A	EC	ISD	SO261	SO2
A	EC	Lumidor	Gasponder I	COMB
A	EC	Lumidor	Gasponder II	COMB, O2
A	EC	Lumidor	Gasponder III	CH4, CO, H2S, O2
A	EC	Lumidor	Gasponder IV	CH4, CO, H2S, O2
A	EC	Lumidor	MPU-4	CH4, CO, H2S, O2
A	EC	Lumidor	Scen-trio	COMB, H2S, CO, Cl2, O2
A	EC	MAST	Series 724	Cl2, Br, Acid gases
A	EC	MDA	Monitox	CO, Cl2, HCN, H2S, O2, SO2, Phosgene
A	EC	National Draeger	Multiwarn	COMB, O2, CO, H2S
A	EC	National Draeger	Triowarn	O2, CO, H2S
A	EC	Neotronics	Exotox	COMB, O2, CO, H2S, SO2
A	EC	Neotronics	Neotox	O2, CO, H2S, SO2, Cl2
A	EC	NOVA	Nova 370	O2, CO, CO2
A	EC	Oldham France S.A.	OX 11	O2
A	EC	Oldham France S.A.	TX 11	CO, H2S, SO2
A	EC	QEL	Qx Series	COMB, H2S, O2, CO, HCN, Cl2, HCl, SO2, NO2, NO, Phosphine
A	EC	Scott	Scott-Alert	METH, O2, H2S, CO
A	EC	Sensidyne	Mini monitor	CO, H2S, O2, NO2, SO2
A	EC	Sensidyne	SS 2000	NH3, Cl2, HCN, SO2, CO2, H2S, HF, HCl, F, Br2
A	EC	SMC	Sierra 55	O2
A	EL	NOVA	Nova 400	O2
A	EL	NOVA	Nova 420	CO2
A	EL	NOVA	Nova 430	HF
A	EL	NOVA	Nova 440	Cl2
A	EL	NOVA	Nova 450	H2S
A	EL	NOVA	Nova 460	SO2
A	EL	NOVA	Nova 470	HCN
A	EL	NOVA	Nova 480	CO
A	EL	NOVA	Nova 490	HCl
A	EL	NOVA	Nova 495	Chlorinated hydrocarbons
A	FC	AIM	AIM 3000	COMB, TOX, O2, CO2, H2S
A	FC	Enmet	Tritector CGS-100SP	COMB, TOX, O2
A	FC	MDA	Formaldemeter Mark II	Formaldehyde
A	FI	Foxboro	OVA 108	COMB, BTEX, TOX, R-OH
A	FI	Foxboro	OVA 128	COMB, BTEX, TOX, R-OH
A	FI	Foxboro	OVA 88	COMB, BTEX, TOX, R-OH
A	FI	Heath Consultants	Detecto-Pak II M	COMB
A	FI	Summit Interests	SIP-1000	all priority list gases and vapours
A	FI	Thermo	Series 700	COMB, BTEX, TOX, R-OH
A	GC	Microsensor	M200	all priority list gases and vapours
A	GF	Arizona	Jerome 411	Mercury vapour
A	GF	Arizona	Jerome 621	H2S
A	IR	Foxboro	Miran 101	all priority list gases and vapours
A	IR	Foxboro	Miran 103	all priority list gases and vapours
A	IR	Foxboro	Miran 1A	all priority list gases and vapours
A	IR	Foxboro	Miran 1B	all priority list gases and vapours

A	IR	NOVA	Nova 7550P2	CO, Hydrocarbons
A	NDIR	ADC	ADC PM2	CO, CH4, CO2
A	NDIR	Armstrong	AMC CD-1	CO2
A	NDIR	CEA	Riken RI-411	CO2
A	P	Ecolyzer	Ecolyzer 60-400	COMB, O2
A	PELL	Armstrong	AMC-3003	COMB, O2, CO, H2S
A	PELL	Heath Consultants	GMI Gasurveyor 4	COMB
A	PELL	Crowcon	Gasalarm Type 84GA	COMB
A	PELL	Crowcon	Gascheck	COMB
A	PELL	Crowcon	Triple Type 84TR/CO84T	COMB, O2, H2S, CO
A	PI	HNU	HW-101, PI-101, GP-101	Acetic acid, R-OH, RHO, RCOR, BTEX, TOX, NH3, H2S, Acetic anhydride, Butadiene, Butylene Morpholine, Propylene, Propylene glycol, Styrene, Turpentine, Vinyl acetate, Vinyl chloride R-NH2, Cyclohexane, Dimethyl ether, Ethylene dibromide, Hexane, Methyl methacrylate
A	PI	Photovac	TIP, MicroTIP	Acetic acid, R-OH, RHO, RCOR, BTEX, TOX, NH3, H2S, Butadiene, Butylene Morpholine, Propylene, Propylene glycol, Styrene, Turpentine, Vinyl acetate, Vinyl chloride R-NH2, Cyclohexane, Dimethyl ether, Ethylene dibromide, Hexane
A	PI	Summit Interests	SIP-1000	all priority list gases and vapours
A	PI	Thermo	OVM 580A	COMB, BTEX, R-OH, RCOR, RHO, NH3, R-NH2, H2S, Anhydrides, Acetic acid, Arsine, Vinyl chloride
A	SC	AIM	AIM 815-Z	COMB, TOX
A	SC	AIM	AIM 3000	COMB, TOX, O2, CO2, H2S
A	SC	Heath Consultants	EI-4	Ethane, Natural gas
A	SS	IST	AG5000	all priority list gases and vapours
A	SS	IST	AG5100	all priority list gases and vapours
A	SS	IST	AG6000	COMB, H2S
A	SS	USI	USI portables	COMB, CO, H2S, Ethylene oxide, NH3, TOX, Gasoline, Freon, SO2, CH4, Hydrocarbons
A	TC	GfG	Exotector	COMB
A	TC	NOVA	Nova 370	O2, CO, CO2
A	TC	Summit Interests	SIP-1000	all priority list gases and vapours
A	UV	Shawcity	MVI	Mercury
A,W	GC	HNU	Model 311	all priority list gases and vapours
A,W	GC	Photovac	Photovac 10S	COMB, BTEX, TOX, ROH, RCOR, RHO, Ethylene oxide, Arsine, Phosphine, H2S, Glycol ethers, Cyclohexane
A,W	GC	Sentex	Scentograph	all priority list gases and vapours
A,W	GC	Sentex	Scentor	all priority list gases and vapours
A,W	GC	Thermo	Model A210	all priority list gases and vapours
A,W	GC	Thermo	Model A511	all priority list gases and vapours
A,W	GC	Thermo	OVM/GC 590	COMB, BTEX, R-OH, RCOR, RHO, NH3, R-NH2, H2S, Anhydrides, Acetic acid, Arsine, Vinyl chloride
A,W	GC	Xontech	GC-810	all priority list gases and vapours
A,W	PI	Thermo	OVM/GC 590	COMB, BTEX, R-OH, RCOR, RHO, NH3, R-NH2, H2S, Anhydrides, Acetic acid, Arsine, Vinyl chloride
O	T	Chemetrics	Quanti-Chlor test	Cl2
S	COL	Hach	DREL/2000 (Soils)	NH3, -NO3, Phosphorus, Potassium
S	COL	Lamotte	TRL-12	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, -NO2, Phenols, Phosphates, Sulfides, Zn, Ca, Mg, Chlorides
S	T	Hach	DREL/2000 (Soils)	NH3, -NO3, Phosphorus, Potassium
S	T	Lamotte	TRL-12	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, -NO2, Phenols, Phosphates, Sulfides, Zn, Ca, Mg, Chlorides
W	COL	Chemetrics	System 1000	NH3, Cl2, Cr, Cu, CN, Formaldehyde, Glycol, Hydrazine, H2O2, Fe, -NO3, -NO2, O2, Phenol, Phosphate, Sulfide, Zn
W	COL	Hach	DREL/2000	Al, As, Ba, B, Br2, Cl2, Cr, Cu, CN, Formaldehyde, Mn, NH3, -NO3, Phenol, Phosphorus, Sulfate Chlorides, Chlorine dioxide, HCN, F, Hydrazine, I, Fe, Pb, -NO2, Sulfide, Zn
W	COL	Hach	Individual test kits	NH3, Cl2, CN, Hydrazine, -NO3, -NO2, Phosphates, Sulfates, Cr, Cu, Fluoride, Fe, Mn, Zn
W	COL	Lamotte	MTRL colorimeter	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, - NO3, -NO2, Phenol, Phosphates, Sulfides, Zn

W	COL	Lamotte	Octa-slide	NH3, Cl2, Cr, Fe, -NO3, Phosphates, Sulfides
W	COL	Lamotte	STC-AL	Aluminum
W	COL	Lamotte	STC-BR	Br
W	COL	Lamotte	STC-CD	Chlorine dioxide
W	COL	Lamotte	STC-CL	Cl2
W	COL	Lamotte	STC-CR	Cr
W	COL	Lamotte	STC-CY	HCN
W	COL	Lamotte	STC-FE	Fe
W	COL	Lamotte	STC-FL	Fluoride
W	COL	Lamotte	STC-HS	Sulfide
W	COL	Lamotte	STC-HZ	Hydrazine
W	COL	Lamotte	STC-IO	Iodine
W	COL	Lamotte	STC-MN	Manganese
W	COL	Lamotte	STC-NA	Nitrates
W	COL	Lamotte	STC-NH	NH3
W	COL	Lamotte	STC-NI	Nitrites
W	COL	Lamotte	STC-PHR	Phosphates
W	COL	Lamotte	STC-PN	Phenols
W	COL	Lamotte	STC-SU	Sulfates
W	COL	Lamotte	TRL-05	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, -NO2, Phenols, Phosphates, Sulfides, Zn, CO2
W	COL	Lovibond	Lovibond 2000	used with any appropriate test in water
W	COL	Lovibond	PC 10	Aluminum, Br, Cl2, HCN, Fe
W	COL	Lovibond	PC 100	Aluminum, NH3, Br, Cl2, Chlorides, Cr, HCN, Fe, Mn, -NO3, -NO2, Phosphates, Sulphates, Zn
W	COL	Soiltest	Limnology kit 1	NH3, -NO3, Phosphates, Sulfides
W	COL	Soiltest	Limnology kit 2	Fluoride, Manganese, Sulfates
W	COL	Soiltest	Limnology kit 3	Cl2, Cr, CN, Fe, Zn
W	COL	Soiltest	Paqualab	NH3, Cl2, -NO3, -NO2
W	COL	Soiltest	Water Analyzer 2	Barium, Br2, Cl2, Chlorides, Cr, Cu, CN, HCN, F, Hydrazine, H2O2, I, Fe, -NO3, -NO2, Phenol, Phosphates, Sulfates, Sulfites, Zn
W	COL	Westinghouse	Bio-assay	Triazine, Carbofuran, Pentachlorophenol
W	SS	Westinghouse	Hydrocarbon Sensor	Aliphatic hydrocarbons
W	T	Hach	DREL/2000	Al, As, Ba, B, Br2, Cl2, Cr, Cu, CN, Formaldehyde, Mn, NH3, -NO3, Phenol, Phosphorus, Sulfate
W	T	Hach	Individual test kits	Chlorides, Formaldehyde, H2O2, Sulfites, Cr
W	T	Lamotte	TRL-05	NH3, Cl2, Br, I, Fe, Cr, HCN, F, H2O2, Mn, Morpholine, -NO3, -NO2, Phenols, Phosphates, Sulfides, Zn, CO2
W	T	Lovibond	Minikits	Chlorides, Cr, HCN, -NO2, Organophosphonate, Sulfates, Sulfites
W	T	Soiltest	Limnology kit 1	NH3, -NO3, Phosphates, Sulfides
W	T	Soiltest	Limnology kit 2	Fluoride, Manganese, Sulfates
W	T	Soiltest	Limnology kit 3	Cl2, Cr, CN, Fe, Zn
W,S	COL	Hanby	Field test kit	BTEX, Gasoline, PCBs
W,S	XRF	HNU	Field portable XRF	all elements from Na through to U
W,S	XRF	Outokumpu	X-MET 840	all elements from Aluminum to Uranium (in atomic number)
W,S	XRF	Outokumpu	X-MET 880	all elements from Aluminum to Uranium (in atomic number)
W,S	XRF	Oxford	Lab-X 1000	all elements from Aluminum to Uranium (in atomic number)
W,S,O	SV	Chemtronics	PDV 2000	trace metals - As, Sb, Bi, Cd, Cu, Au, Pb, Hg, Zn, Mn, Se, Sn

COMPOUND	MANUFACTURER	MODEL NAME	DETECTION METHOD	MEDIA
All priority list gases	Enmet	Toxic Gas Detector kit	COL	A
All priority list gases	Foxboro	Miran 1A	IR	A
All priority list gases	Foxboro	Miran 1B	IR	A
All priority list gases	Foxboro	Miran 101	IR	A
All priority list gases	Foxboro	Miran 103	IR	A
All priority list gases	Gastec	Detector tubes	COL	A
All priority list gases	HNU	Model 311	GC	A,W
All priority list gases	IST	AG5000	SS	A
All priority list gases	IST	AG5100	SS	A
All priority list gases	Microsensor	M200	GC	A
All priority list gases	MSA	Samplair kit	COL	A
All priority list gases	National Draeger	Detector tubes	COL	A
All priority list gases	Sensidyne	HazMat kit	COL	A
All priority list gases	Sentex	Scentograph	GC	A,W
All priority list gases	Sentex	Scentor	GC	A,W
All priority list gases	SKC	Color-detector tubes	COL	A
All priority list gases	Summit Interests	SIP-1000	PI,FI,TC	A
All priority list gases	Thermo	Model A511	GC	A,W
All priority list gases	Thermo	Model A210	GC	A,W
All priority list gases	Xontech	GC-810	GC	A,W
Acetic Acid	HNU	HW-101, PI-101, GP-101	PI	A
Acetic Acid	Photovac	TIP, MicroTIP	PI	A
Acetic Acid	Thermo	OVM 580A	PI	A
Acetic Acid	Thermo	OVM/GC 590	PI, GC	A,W
Acetic Anhydride	HNU	HW-101, PI-101, GP-101	PI	A
Alcohols	Foxboro	OVA 128	FI	A
Alcohols	Foxboro	OVA 108	FI	A
Alcohols	Foxboro	OVA 88	FI	A
Alcohols	HNU	HW-101, PI-101, GP-101	PI	A
Alcohols	Photovac	Photovac 10S	GC	A,W
Alcohols	Photovac	TIP, MicroTIP	PI	A
Alcohols	Thermo	OVM 580A	PI	A
Alcohols	Thermo	Series 700	FI	A
Alcohols	Thermo	OVM/GC 590	PI, GC	A,W
Aldehydes	HNU	HW-101, PI-101, GP-101	PI	A
Aldehydes	Photovac	Photovac 10S	GC	A,W
Aldehydes	Photovac	TIP, MicroTIP	PI	A
Aldehydes	Thermo	OVM/GC 590	PI, GC	A,W
Aldehydes	Thermo	OVM 580A	PI	A
Aliphatic Hydrocarbons	Westinghouse	Hydrocarbon Sensor	SS	W
Amines	HNU	HW-101, PI-101, GP-101	PI	A
Amines	Photovac	TIP, MicroTIP	PI	A

Amines	Thermo	OVM/GC 590	PI, GC	A,W
Amines	Thermo	OVM 580A	PI	A
Ammonia	CEA	TGM 555	COL	A
Ammonia	Chemetrics	System 1000	COL	W
Ammonia	Gastech	GasTechtor 4700	EC	A
Ammonia	Hach	DREL/2000	COL,T	W
Ammonia	Hach	DREL/2000 (Soils)	COL,T	S
Ammonia	Hach	Individual test kits	COL	W
Ammonia	HNU	HW-101, PI-101, GP-101	PI	A
Ammonia	Lamotte	MTRL colorimeter	COL	W
Ammonia	Lamotte	Octa-slide	COL	W
Ammonia	Lamotte	STC-NH	COL	W
Ammonia	Lamotte	AM-61	COL	A
Ammonia	Lamotte	TRL-12	COL,T	S
Ammonia	Lamotte	TRL-05	COL,T	W
Ammonia	Lovibond	PC 100	COL	W
Ammonia	MDA	TLD-1	COL	A
Ammonia	Photovac	TIP, MicroTIP	PI	A
Ammonia	Sensidyne	SS 2000	EC	A
Ammonia	Soiltest	Paqualab	COL	W
Ammonia	Soiltest	Limnology kit 1	COL,T	W
Ammonia	Soiltest	Air test systems	COL	A
Ammonia	Thermo	OVM 580A	PI	A
Ammonia	Thermo	OVM/GC 590	PI, GC	A,W
Ammonia	USI	USI portables	SS	A
Anhydrides	Thermo	OVM 580A	PI	A
Anhydrides	Thermo	OVM/GC 590	PI, GC	A,W
Aromatics (BTEX)	Foxboro	OVA 108	FI	A
Aromatics (BTEX)	Foxboro	OVA 128	FI	A
Aromatics (BTEX)	Foxboro	OVA 88	FI	A
Aromatics (BTEX)	Hanby	Field test kit	COL	W,S
Aromatics (BTEX)	HNU	HW-101, PI-101, GP-101	PI	A
Aromatics (BTEX)	Photovac	TIP, MicroTIP	PI	A
Aromatics (BTEX)	Photovac	Photovac 10S	GC	A,W
Aromatics (BTEX)	Thermo	OVM 580A	PI	A
Aromatics (BTEX)	Thermo	Series 700	FI	A
Aromatics (BTEX)	Thermo	OVM/GC 590	PI, GC	A,W
Arsine	CEA	Riken AS-7	EC	A
Arsine	MDA	TLD-1	COL	A
Arsine	Photovac	Photovac 10S	GC	A,W
Arsine	Photovac	TIP, MicroTIP	PI	A
Arsine	Sensidyne	SS 4000	CP	A
Arsine	Thermo	OVM 580A	PI	A
Arsine	Thermo	OVM/GC 590	PI, GC	A,W
Boron Trichloride	Anacon	Ambient Air Monitors	EC	A
Bromine	Anacon	Ambient Air Monitors	EC	A

Bromine	Hach	DREL/2000	COL,T	W
Bromine	Lamotte	STC-BR	COL	W
Bromine	Lamotte	MTRL colorimeter	COL	W
Bromine	Lamotte	TRL-12	COL,T	S
Bromine	Lamotte	TRL-05	COL,T	W
Bromine	Lovibond	PC 10	COL	W
Bromine	Lovibond	PC 100	COL	W
Bromine	MAST	Series 724	EC	A
Bromine	MDA	TLD-1	COL	A
Bromine	Sensidyne	SS 2000	EC	A
Bromine	Soiltest	Air test systems	COL	A
Bromine	Soiltest	Water Analyzer 2	COL	W
Butadiene	HNU	HW-101, PI-101, GP-101	PI	A
Butadiene	Photovac	TIP, MicroTIP	PI	A
Butylene	HNU	HW-101, PI-101, GP-101	PI	A
Butylene	Photovac	TIP, MicroTIP	PI	A
Carbofuran	Westinghouse	Bio-assay	COL	W
Carbon Dioxide	ADC	ADC PM2	NDIR	A
Carbon Dioxide	AIM	AIM 3000	EC,SC,FC	A
Carbon Dioxide	Armstrong	AMC CD-1	NDIR	A
Carbon Dioxide	CEA	Riken RI-411	NDIR	A
Carbon Dioxide	GfG	Vabotector	EC	A
Carbon Dioxide	Lamotte	TRL-05	COL,T	W
Carbon Dioxide	MAST	Series 724	EC	A
Carbon Dioxide	NOVA	Nova 420	EL	A
Carbon Dioxide	NOVA	Nova 370	EC,TC	A
Carbon Dioxide	Sensidyne	SS 2000	EC	A
Carbon Monoxide	ADC	ADC PM2	NDIR	A
Carbon Monoxide	Armstrong	AMC-1101	EC	A
Carbon Monoxide	Armstrong	AMC-3003	EC,PELL	A
Carbon Monoxide	Bacharach	Sniffer 500 Series	CB,EC	A
Carbon Monoxide	CEA	Riken CO-7	EC	A
Carbon Monoxide	Crowcon	Series 4000	EC	A
Carbon Monoxide	Crowcon	Toximeter 88TX/CO	EC	A
Carbon Monoxide	Crowcon	Triple Type CO84TR	PELL,EC	A
Carbon Monoxide	Dynamation	Combo 444	EC	A
Carbon Monoxide	Dynamation	Combo 434	EC	A
Carbon Monoxide	Dynamation	Monogard 104	EC	A
Carbon Monoxide	Ecolyzer	Ecolyzer 100 Series	EC	A
Carbon Monoxide	Ecolyzer	Ecolyzer 2000 Series	EC	A
Carbon Monoxide	Ecolyzer	Ecolyzer 200 series	EC	A
Carbon Monoxide	Enmet	Quad-400	EC	A
Carbon Monoxide	Gastech	GasTechtor series	EC,CO	A
Carbon Monoxide	Gastech	CO-82	EC	A
Carbon Monoxide	Gastech	GX Series	EC,CO	A
Carbon Monoxide	GfG	Polytector series	EC	A
Carbon Monoxide	GfG	Microco	EC	A

Carbon Monoxide	GfG	Vabotector	EC	A
Carbon Monoxide	ISD	CMX271	EC	A
Carbon Monoxide	ISD	CMX270	EC	A
Carbon Monoxide	ISD	CO260	EC	A
Carbon Monoxide	Lamotte	AM-61	COL	A
Carbon Monoxide	Lumidor	Scen-trio	EC	A
Carbon Monoxide	Lumidor	Gasponder III	EC	A
Carbon Monoxide	Lumidor	MPU-4	EC	A
Carbon Monoxide	Lumidor	Gasponder IV	EC	A
Carbon Monoxide	MDA	Monitox	EC	A
Carbon Monoxide	National Draeger	Multiwarn	CO,EC	A
Carbon Monoxide	National Draeger	Triowarn	EC	A
Carbon Monoxide	Neotronics	Exotox	EC	A
Carbon Monoxide	Neotronics	Neotox	EC	A
Carbon Monoxide	NOVA	Nova 370	EC,TC	A
Carbon Monoxide	NOVA	Nova 480	EL	A
Carbon Monoxide	NOVA	Nova 7550P2	IR	A
Carbon Monoxide	Oldham France S.A.	TX 11	EC	A
Carbon Monoxide	QEL	Qx Series	EC	A
Carbon Monoxide	Scott	Scott-Alert	EC	A
Carbon Monoxide	Sensidyne	Mini monitor	EC	A
Carbon Monoxide	Soiltest	Air test systems	COL	A
Carbon Monoxide	USI	USI portables	SS	A
Chlorides	Hach	Individual test kits	T	W
Chlorides	Hach	DREL/2000	COL,T	W
Chlorides	Lamotte	TRL-12	COL,T	S
Chlorides	Lovibond	Minikits	T	W
Chlorides	Lovibond	PC 100	COL	W
Chlorides	Soiltest	Air test systems	COL	A
Chlorides	Soiltest	Water Analyzer 2	COL	W
Chlorinated Solvents	NOVA	Nova 495	EL	A
Chlorine	Anacon	Ambient Air Monitors	EC	A
Chlorine	CEA	Riken CL-7	EC	A
Chlorine	CEA	TGM 555	COL	A
Chlorine	Chemetrics	Quanti-Chlor test	T	O
Chlorine	Chemetrics	System 1000	COL	W
Chlorine	Crowcon	Series 4000	EC	A
Chlorine	Crowcon	Toximeter 88TX/CL	EC	A
Chlorine	Dynamation	Monogard 108	EC	A
Chlorine	Dynamation	Combo 444	EC	A
Chlorine	Gastech	GasTechtor 4700	EC	A
Chlorine	Hach	DREL/2000	COL,T	W
Chlorine	Hach	Individual test kits	COL	W
Chlorine	Lamotte	STC-CL	COL	W
Chlorine	Lamotte	TRL-05	COL,T	W
Chlorine	Lamotte	AM-61	COL	A
Chlorine	Lamotte	TRL-12	COL,T	S
Chlorine	Lamotte	Octa-slide	COL	W
Chlorine	Lamotte	MTRL colorimeter	COL	W

Chlorine	Lovibond	PC 100	COL	W
Chlorine	Lovibond	PC 10	COL	W
Chlorine	Lumidor	Scen-trio	EC	A
Chlorine	MAST	Series 724	EC	A
Chlorine	MDA	TLD-1	COL	A
Chlorine	MDA	Monitox	EC	A
Chlorine	Neotronics	Neotox	EC	A
Chlorine	NOVA	Nova 440	EL	A
Chlorine	QEL	Qx Series	EC	A
Chlorine	Sensidyne	SS 2000	EC	A
Chlorine	Soiltest	Limnology kit 3	COL,T	W
Chlorine	Soiltest	Air test systems	COL	A
Chlorine	Soiltest	Paqualab	COL	W
Chlorine	Soiltest	Water Analyzer 2	COL	W
Chlorine Dioxide	Hach	DREL/2000	COL,T	W
Chlorine Dioxide	Lamotte	STC-CD	COL	W
Chromates	Chemetrics	System 1000	COL	W
Chromates	Lovibond	Minikits	T	W
Chromates	Lovibond	PC 100	COL	W
Chromates	Soiltest	Limnology kit 3	COL,T	W
Chromates	Soiltest	Water Analyzer 2	COL	W
Chromic Acid	Soiltest	Air test systems	COL	A
Combustibles	AIM	AIM 3000	EC,SC,FC	A
Combustibles	AIM	AIM 815-Z	SC	A
Combustibles	Armstrong	AMC-3003	EC,PELL	A
Combustibles	Bacharach	Sniffer 300 Series	CB,EC	A
Combustibles	Bacharach	Sniffer 500 Series	CB,EC	A
Combustibles	Crowcon	Gasalarm Type 84GA	PELL	A
Combustibles	Crowcon	Gascheck (74GC)	PELL	A
Combustibles	Crowcon	Triple Type 84TR	PELL,EC	A
Combustibles	Dynamation	Combo 434	EC	A
Combustibles	Dynamation	Combo 444	EC	A
Combustibles	Dynamation	Combo II	EC	A
Combustibles	Ecolyzer	Ecolyzer 60-400	CO,P	A
Combustibles	Enmet	Quad-400	EC	A
Combustibles	Enmet	Tritector CGS-100SP	EC,FC	A
Combustibles	Enmet	Tritector CGS-20M	EC	A
Combustibles	Enmet	Tritector CGS-80R	EC	A
Combustibles	Foxboro	OVA 108	FI	A
Combustibles	Foxboro	OVA 128	FI	A
Combustibles	Foxboro	OVA 88	FI	A
Combustibles	Gastech	GasTechtor series	EC,CO	A
Combustibles	Gastech	GP-204	CO	A
Combustibles	Gastech	GP-82	CO	A
Combustibles	Gastech	GX Series	EC,CO	A
Combustibles	GfG	Exotector	CO,TC	A
Combustibles	GfG	Polytector series	EC	A
Combustibles	GfG	Vabotector	EC	A

Combustibles	Heath Consultants	Detecto-Pak II M	FI	A
Combustibles	Heath Consultants	GMI Gasurveyor 4	PELL	A
Combustibles	ISD	CMX271	EC	A
Combustibles	ISD	HMX271	EC	A
Combustibles	ISD	LD220	EC	A
Combustibles	ISD	MX241	EC	A
Combustibles	IST	AG6000	SS	A
Combustibles	Lumidor	Gasponder I	EC	A
Combustibles	Lumidor	Gasponder II	EC	A
Combustibles	Lumidor	Scen-trio	EC	A
Combustibles	MSA	Explosilarm 100	CO	A
Combustibles	MSA	Models 20,30,40	CO	A
Combustibles	National Draeger	Multiwarn	CO,EC	A
Combustibles	Neotronics	Exotox	EC	A
Combustibles	Photovac	Photovac 10S	GC	A
Combustibles	QEL	Qx Series	EC	A
Combustibles	Thermo	OVM 580A	PI	A
Combustibles	Thermo	OVM/GC 590	PI, GC	A,W
Combustibles	Thermo	Series 700	FI	A
Combustibles	USI	USI portables	SS	A
Combustibles	Westinghouse	Hydrocarbon Sensor	SS	W
Cyanide	Chemetrics	System 1000	COL	W
Cyanide	Hach	DREL/2000	COL,T	W
Cyanide	Hach	Individual test kits	COL	W
Cyanide	Lamotte	AM-61	COL	A
Cyanide	Soiltest	Air test systems	COL	A
Cyanide	Soiltest	Limnology kit 3	COL,T	W
Cyanide	Soiltest	Water Analyzer 2	COL	W
Cyclohexane	HNU	HW-101, PI-101, GP-101	PI	A
Cyclohexane	Photovac	Photovac 10S	GC	A
Cyclohexane	Photovac	TIP, MicroTIP	PI	A
Diborane	CEA	Riken BH-7	EC	A
Diborane	MDA	TLD-1	COL	A
Diisocyanates	MDA	TLD-1	COL	A
Dimethyl Ether	HNU	HW-101, PI-101, GP-101	PI	A
Dimethyl Ether	Photovac	TIP, MicroTIP	PI	A
Ethane	Heath Consultants	EI-4	SC	A
Ethylene Dibromide	HNU	HW-101, PI-101, GP-101	PI	A
Ethylene Dibromide	Photovac	TIP, MicroTIP	PI	A
Ethylene Oxide	Crowcon	Series 4000	EC	A
Ethylene Oxide	Photovac	Photovac 10S	GC	A,W
Ethylene Oxide	Photovac	TIP, MicroTIP	PI	A
Ethylene Oxide	USI	USI portables	SS	A

Fluorides	Hach	DREL/2000	COL,T	W
Fluorides	Hach	Individual test kits	COL	W
Fluorides	Lamotte	AM-61	COL	A
Fluorides	Lamotte	TRL-12	COL,T	S
Fluorides	Lamotte	TRL-05	COL,T	W
Fluorides	Lamotte	MTRL colorimeter	COL	W
Fluorides	Lamotte	STC-FL	COL	W
Fluorides	Soiltest	Air test systems	COL	A
Fluorides	Soiltest	Limnology kit 2	COL,T	W
Fluorides	Soiltest	Water Analyzer 2	COL	W
Formaldehyde	CEA	TGM 555	COL	A
Formaldehyde	Chemetrics	System 1000	COL	W
Formaldehyde	Crowcon	Series 4000	EC	A
Formaldehyde	Hach	DREL/2000	COL,T	W
Formaldehyde	Hach	Individual test kits	T	W
Formaldehyde	MDA	Formaldemeter Mark II	FC	A
Formaldehyde	Soiltest	Air test systems	COL	A
Freon	USI	USI portables	SS	A
Gasoline	Hanby	Field test kit	COL	W,S
Gasoline	USI	USI portables	SS	A
Glycol	Chemetrics	System 1000	COL	W
Glycol Ethers	Photovac	Photovac 10S	GC	A,W
Hexane	HNU	HW-101, PI-101, GP-101	PI	A
Hexane	Photovac	TIP, MicroTIP	PI	A
Hydrazine	CEA	TGM 555	COL	A
Hydrazine	Chemetrics	System 1000	COL	W
Hydrazine	Crowcon	Series 4000	EC	A
Hydrazine	GMD	Autostep	COL	A
Hydrazine	Hach	DREL/2000	COL,T	W
Hydrazine	Hach	Individual test kits	COL	W
Hydrazine	Lamotte	STC-HZ	COL	W
Hydrazine	MDA	TLD-1	COL	A
Hydrazine	Soiltest	Air test systems	COL	A
Hydrazine	Soiltest	Water Analyzer 2	COL	W
Hydrocarbons	NOVA	Nova 7550P2	IR	A
Hydrocarbons	USI	USI portables	SS	A
Hydrogen Chloride	Anacon	Ambient Air Monitors	EC	A
Hydrogen Chloride	CEA	Riken HL-7	EC	A
Hydrogen Chloride	CEA	TGM 555	COL	A
Hydrogen Chloride	Crowcon	Series 4000	EC	A
Hydrogen Chloride	Gastech	GasTechtor 4700	EC	A
Hydrogen Chloride	GMD	Autostep	COL	A
Hydrogen Chloride	MDA	TLD-1	COL	A

Hydrogen Chloride	NOVA	Nova 490	EL	A
Hydrogen Chloride	QEL	Qx Series	EC	A
Hydrogen Chloride	Sensidyne	SS 2000	EC	A
Hydrogen Cyanide	Anacon	Ambient Air Monitors	EC	A
Hydrogen Cyanide	CEA	TGM 555	COL	A
Hydrogen Cyanide	Crowcon	Series 4000	EC	A
Hydrogen Cyanide	Crowcon	Toximeter 88TX/HN	EC	A
Hydrogen Cyanide	Gastech	GasTechtor 4700	EC	A
Hydrogen Cyanide	Hach	DREL/2000	COL,T	W
Hydrogen Cyanide	Lamotte	TRL-05	COL,T	W
Hydrogen Cyanide	Lamotte	STC-CY	COL	W
Hydrogen Cyanide	Lamotte	TRL-12	COL,T	S
Hydrogen Cyanide	Lamotte	MTRL colorimeter	COL	W
Hydrogen Cyanide	Lovibond	Minikits	T	W
Hydrogen Cyanide	Lovibond	PC 10	COL	W
Hydrogen Cyanide	Lovibond	PC 100	COL	W
Hydrogen Cyanide	MDA	Monitox	EC	A
Hydrogen Cyanide	MDA	TLD-1	COL	A
Hydrogen Cyanide	NOVA	Nova 470	EL	A
Hydrogen Cyanide	QEL	Qx Series	EC	A
Hydrogen Cyanide	Sensidyne	SS 2000	EC	A
Hydrogen Cyanide	Soiltest	Water Analyzer 2	COL	W
Hydrogen Fluoride	Anacon	Ambient Air Monitors	EC	A
Hydrogen Fluoride	CEA	TGM 555	COL	A
Hydrogen Fluoride	Gastech	GasTechtor 4700	EC	A
Hydrogen Fluoride	GMD	Autostep	COL	A
Hydrogen Fluoride	MDA	TLD-1	COL	A
Hydrogen Fluoride	NOVA	Nova 430	EL	A
Hydrogen Fluoride	Sensidyne	SS 2000	EC	A
Hydrogen Peroxide	CEA	TGM 555	COL	A
Hydrogen Peroxide	Chemetrics	System 1000	COL	W
Hydrogen Peroxide	Hach	Individual test kits	T	W
Hydrogen Peroxide	Lamotte	MTRL colorimeter	COL	W
Hydrogen Peroxide	Soiltest	Water Analyzer 2	COL	W
Hydrogen Peroxide	Soiltest	Air test systems	COL	A
Hydrogen Sulfide	AIM	AIM 3000	EC,SC,FC	A
Hydrogen Sulfide	Anacon	Ambient Air Monitors	EC	A
Hydrogen Sulfide	Arizona	Jerome 621	GF	A
Hydrogen Sulfide	Armstrong	AMC-3003	EC,PELL	A
Hydrogen Sulfide	Armstrong	AMC-1103	EC	A
Hydrogen Sulfide	Bacharach	Sniffer 500 Series	CB,EC	A
Hydrogen Sulfide	CEA	TGM 555	COL	A
Hydrogen Sulfide	CEA	Riken HS-7	EC	A
Hydrogen Sulfide	Crowcon	Series 4000	EC	A
Hydrogen Sulfide	Crowcon	Toximeter 88TX/HS	EC	A
Hydrogen Sulfide	Crowcon	Triple Type 84TR	PELL,EC	A
Hydrogen Sulfide	Dynamation	Combo 444	EC	A
Hydrogen Sulfide	Dynamation	Combo 434	EC	A

Hydrogen Sulfide	Dynamation	Monogard 103	EC	A
Hydrogen Sulfide	Ecolyzer	Ecolyzer 100 Series	EC	A
Hydrogen Sulfide	Ecolyzer	Ecolyzer 2000 Series	EC	A
Hydrogen Sulfide	Ecolyzer	Ecolyzer 200 series	EC	A
Hydrogen Sulfide	Enmet	Quad-400	EC	A
Hydrogen Sulfide	Gastech	GX Series	EC,CO	A
Hydrogen Sulfide	Gastech	HS-82	EC	A
Hydrogen Sulfide	Gastech	GasTechtor series	EC,CO	A
Hydrogen Sulfide	Gastech	GasTechtor 4700	EC	A
Hydrogen Sulfide	GfG	Microtox	EC	A
Hydrogen Sulfide	GfG	Vabotector	EC	A
Hydrogen Sulfide	GfG	Polytector series	EC	A
Hydrogen Sulfide	HNU	HW-101, PI-101, GP-101	PI	A
Hydrogen Sulfide	ISD	HS267	EC	A
Hydrogen Sulfide	ISD	HMX271	EC	A
Hydrogen Sulfide	IST	AG6000	SS	A
Hydrogen Sulfide	Lamotte	AM-61	COL	A
Hydrogen Sulfide	Lumidor	Scen-trio	EC	A
Hydrogen Sulfide	Lumidor	Gasponder III	EC	A
Hydrogen Sulfide	Lumidor	MPU-4	EC	A
Hydrogen Sulfide	Lumidor	Gasponder IV	EC	A
Hydrogen Sulfide	MAST	Series 724	EC	A
Hydrogen Sulfide	MDA	Monitox	EC	A
Hydrogen Sulfide	MDA	TLD-1	COL	A
Hydrogen Sulfide	National Draeger	Multiwarn	CO,EC	A
Hydrogen Sulfide	National Draeger	Triowarn	EC	A
Hydrogen Sulfide	Neotronics	Exotox	EC	A
Hydrogen Sulfide	Neotronics	Neotox	EC	A
Hydrogen Sulfide	NOVA	Nova 450	EL	A
Hydrogen Sulfide	Oldham France S.A.	TX 11	EC	A
Hydrogen Sulfide	Photovac	Photovac 10S	GC	A,W
Hydrogen Sulfide	Photovac	TIP, MicroTIP	PI	A
Hydrogen Sulfide	QEL	Qx Series	EC	A
Hydrogen Sulfide	Scott	Scott-Alert	EC	A
Hydrogen Sulfide	Sensidyne	Mini monitor	EC	A
Hydrogen Sulfide	Sensidyne	SS 2000	EC	A
Hydrogen Sulfide	Soiltest	Air test systems	COL	A
Hydrogen Sulfide	Thermo	OVM 580A	PI	A
Hydrogen Sulfide	Thermo	OVM/GC 590	PI, GC	A,W
Hydrogen Sulfide	USI	USI portables	SS	A
Isocyanates	GMD	Autostep	COL	A
Ketones	HNU	HW-101, PI-101, GP-101	PI	A
Ketones	Photovac	Photovac 10S	GC	A,W
Ketones	Photovac	TIP, MicroTIP	PI	A
Ketones	Thermo	OVM/GC 590	PI, GC	A,W
Ketones	Thermo	OVM 580A	PI	A
Mercaptans	CEA	TGM 555	COL	A
Methane	ADC	ADC PM2	NDIR	A

Methane	GfG	Vabotector	EC	A
Methane	ISD	CMX270	EC	A
Methane	ISD	CD210	EC	A
Methane	ISD	MX240	EC	A
Methane	Lumidor	Gasponder IV	EC	A
Methane	Lumidor	Gasponder III	EC	A
Methane	Lumidor	MPU-4	EC	A
Methane	Scott	Scott-Alert	EC	A
Methane	USI	USIportables	SS	A
Methyl Methacrylate	HNU	HW-101, PI-101, GP-101	PI	A
Morpholine	HNU	HW-101, PI-101, GP-101	PI	A
Morpholine	Photovac	TIP, MicroTIP	PI	A
Morpholine	Lamotte	TRL-12	COL,T	S
Morpholine	Lamotte	MTRL colorimeter	COL	W
Morpholine	Lamotte	TRL-05	COL,T	W
Natural Gas	Heath Consultants	EI-4	SC	A
Nitrates	Chemetrics	System 1000	COL	W
Nitrates	Hach	DREL/2000	COL,T	W
Nitrates	Hach	DREL/2000 (Soils)	COL,T	S
Nitrates	Hach	Individual test kits	COL	W
Nitrates	Lamotte	STC-NA	COL	W
Nitrates	Lamotte	TRL-12	COL,T	S
Nitrates	Lamotte	MTRL colorimeter	COL	W
Nitrates	Lamotte	TRL-05	COL,T	W
Nitrates	Lamotte	Octa-slide	COL	W
Nitrates	Lovibond	PC 100	COL	W
Nitrates	Soiltest	Limnology kit 1	COL,T	W
Nitrates	Soiltest	Paqualab	COL	W
Nitrates	Soiltest	Water Analyzer 2	COL	W
Nitric Acid	MDA	TLD-1	COL	A
Nitric Oxide	Crowcon	Series 4000	EC	A
Nitric Oxide	Ecolyzer	Ecolyzer 2000 Series	EC	A
Nitric Oxide	QEL	Qx Series	EC	A
Nitrites	Chemetrics	System 1000	COL	W
Nitrites	Hach	DREL/2000	COL,T	W
Nitrites	Hach	Individual test kits	COL	W
Nitrites	Lamotte	TRL-12	COL,T	S
Nitrites	Lamotte	STC-NI	COL	W
Nitrites	Lamotte	MTRL colorimeter	COL	W
Nitrites	Lamotte	TRL-05	COL,T	W
Nitrites	Lovibond	Minikits	T	W
Nitrites	Lovibond	PC 100	COL	W
Nitrites	Soiltest	Water Analyzer 2	COL	W
Nitrites	Soiltest	Paqualab	COL	W

Nitrogen Dioxide	CEA	Riken ND-7	EC	A
Nitrogen Dioxide	CEA	TGM 555	COL	A
Nitrogen Dioxide	Crowcon	Series 4000	EC	A
Nitrogen Dioxide	Crowcon	Toximeter 88TX/ND	EC	A
Nitrogen Dioxide	Dynamation	Monogard 106	EC	A
Nitrogen Dioxide	Ecolyzer	Ecolyzer 2000 Series	EC	A
Nitrogen Dioxide	Lamotte	AM-61	COL	A
Nitrogen Dioxide	MDA	TLD-1	COL	A
Nitrogen Dioxide	QEL	Qx Series	EC	A
Nitrogen Dioxide	Scintrex	LMA-3	CL	A
Nitrogen Dioxide	Sensidyne	Mini monitor	EC	A
Nitrogen Dioxide	Soiltest	Air test systems	COL	A
Nitrous Oxide	CEA	TGM 555	COL	A
Nitrous Oxide	CEA	Riken NO-7	EC	A
Organophosphonate	Lovibond	Minikits	T	W
Oxygen	AIM	AIM 3000	EC,SC,FC	A
Oxygen	Armstrong	AMC-3003	EC,PELL	A
Oxygen	Armstrong	AMC-1102	EC	A
Oxygen	Bacharach	Sniffer 300 Series	CB,EC	A
Oxygen	Bacharach	Sniffer 500 Series	CB,EC	A
Oxygen	Chemetrics	System 1000	COL	W
Oxygen	Crowcon	Oxytone	EC	A
Oxygen	Crowcon	Oximeter 88OX	EC	A
Oxygen	Crowcon	Triple Type 84TR	PELL,EC	A
Oxygen	Dynamation	Monogard 101	EC	A
Oxygen	Dynamation	Combo 444	EC	A
Oxygen	Dynamation	Combo II	EC	A
Oxygen	Dynamation	Combo 434	EC	A
Oxygen	Ecolyzer	Ecolyzer 200 series	EC	A
Oxygen	Ecolyzer	Ecolyzer 100 Series	EC	A
Oxygen	Ecolyzer	Ecolyzer 2000 Series	EC	A
Oxygen	Ecolyzer	Ecolyzer 60-400	CO,P	A
Oxygen	Enmet	Quad-400	EC	A
Oxygen	Enmet	Tritector CGS-100SP	EC,FC	A
Oxygen	Enmet	Tritector CGS-20M	EC	A
Oxygen	Enmet	Tritector CGS-80R	EC	A
Oxygen	Gastech	GasTechtor series	EC,CO	A
Oxygen	Gastech	GX Series	EC,CO	A
Oxygen	GfG	Polytector series	EC	A
Oxygen	GfG	Vabotector	EC	A
Oxygen	ISD	HMX271	EC	A
Oxygen	ISD	MX240	EC	A
Oxygen	ISD	CMX271	EC	A
Oxygen	ISD	CMX270	EC	A
Oxygen	ISD	MX241	EC	A
Oxygen	ISD	OX231	EC	A
Oxygen	Lumidor	Gasponder IV	EC	A
Oxygen	Lumidor	Gasponder II	EC	A
Oxygen	Lumidor	Scen-trio	EC	A

Oxygen	Lumidor	MPU-4	EC	A
Oxygen	Lumidor	Gasponder III	EC	A
Oxygen	MDA	Monitox	EC	A
Oxygen	National Draeger	Multiwarn	CO,EC	A
Oxygen	National Draeger	Triowarn	EC	A
Oxygen	Neotronics	Exotox	EC	A
Oxygen	Neotronics	Neotox	EC	A
Oxygen	NOVA	Nova 370	EC,TC	A
Oxygen	NOVA	Nova 400	EL	A
Oxygen	Oldham France S.A.	OX 11	EC	A
Oxygen	QEL	Qx Series	EC	A
Oxygen	Scott	Scott-Alert	EC	A
Oxygen	Sensidyne	Mini monitor	EC	A
Oxygen	SMC	Sierra 55	EC	A
Pentachlorophenol	Westinghouse	Bio-assay	COL	W
Phenol	CEA	TGM 555	COL	A
Phenol	Chemetrics	System 1000	COL	W
Phenol	Hach	DREL/2000	COL,T	W
Phenol	Lamotte	STC-PN	COL	W
Phenol	Lamotte	TRL-05	COL,T	W
Phenol	Lamotte	TRL-12	COL,T	S
Phenol	Lamotte	MTRL colorimeter	COL	W
Phenol	Soiltest	Air test systems	COL	A
Phenol	Soiltest	Water Analyzer 2	COL	W
Phosgene	CEA	TGM 555	COL	A
Phosgene	GMD	Autostep	COL	A
Phosgene	MDA	TLD-1	COL	A
Phosgene	MDA	Monitox	EC	A
Phosphates	Chemetrics	System 1000	COL	W
Phosphates	Hach	Individual test kits	COL	W
Phosphates	Lamotte	TRL-05	COL,T	W
Phosphates	Lamotte	MTRL colorimeter	COL	W
Phosphates	Lamotte	TRL-12	COL,T	S
Phosphates	Lamotte	STC-PHR	COL	W
Phosphates	Lamotte	Octa-slide	COL	W
Phosphates	Lovibond	PC 100	COL	W
Phosphates	Soiltest	Limnology kit 1	COL,T	W
Phosphates	Soiltest	Water Analyzer 2	COL	W
Phosphine	CEA	Riken PH-7	EC	A
Phosphine	Photovac	Photovac 10S	GC	A,W
Phosphine	QEL	Qx Series	EC	A
Phosphine	Sensidyne	SS 4000	CP	A
PCB's	Hanby	Field test kit	COL	W,S
Propylene	HNU	HW-101, PI-101, GP-101	PI	A
Propylene	Photovac	TIP	PI	A

Propylene Glycol	HNU	HW-101, PI-101, GP-101	PI	A
Propylene Glycol	Photovac	TIP, MicroTIP	PI	A
Silane	CEA	Riken SH-7	EC	A
Silane	Sensidyne	SS 4000	CP	A
Styrene	HNU	HW-101, PI-101, GP-101	PI	A
Styrene	Photovac	TIP, MicroTIP	PI	A
Sulfates	Hach	DREL/2000	COL,T	W
Sulfates	Hach	Individual test kits	COL	W
Sulfates	Lamotte	STC-SU	COL	W
Sulfates	Lovibond	PC 100	COL	W
Sulfates	Lovibond	Minikits	T	W
Sulfates	Soiltest	Water Analyzer 2	COL	W
Sulfates	Soiltest	Limnology kit 2	COL,T	W
Sulfides	Chemetrics	System 1000	COL	W
Sulfides	Hach	DREL/2000	COL,T	W
Sulfides	Lamotte	Octa-slide	COL	W
Sulfides	Lamotte	TRL-05	COL,T	W
Sulfides	Lamotte	MTRL colorimeter	COL	W
Sulfides	Lamotte	TRL-12	COL,T	S
Sulfides	Lamotte	STC-HS	COL	W
Sulfides	Soiltest	Limnology kit 1	COL,T	W
Sulfites	Lovibond	Minikits	T	W
Sulfites	Hach	Individual test kits	T	W
Sulfites	Soiltest	Water Analyzer 2	COL	W
Sulfur Dioxide	Anacon	Ambient Air Monitors	EC	A
Sulfur Dioxide	CEA	TGM 555	COL	A
Sulfur Dioxide	CEA	Riken SO-7	EC	A
Sulfur Dioxide	Crowcon	Series 4000	EC	A
Sulfur Dioxide	Dynamation	Monogard 107	EC	A
Sulfur Dioxide	Dynamation	Combo 444	EC	A
Sulfur Dioxide	Ecolyzer	Ecolyzer 2000 Series	EC	A
Sulfur Dioxide	Gastech	GasTechtor 4700	EC	A
Sulfur Dioxide	ISD	SO261	EC	A
Sulfur Dioxide	Lamotte	AM-61	COL	A
Sulfur Dioxide	MDA	TLD-1	COL	A
Sulfur Dioxide	MDA	Monitox	EC	A
Sulfur Dioxide	Neotronics	Exotox	EC	A
Sulfur Dioxide	Neotronics	Neotox	EC	A
Sulfur Dioxide	NOVA	Nova 460	EL	A
Sulfur Dioxide	Oldham France S.A.	TX 11	EC	A
Sulfur Dioxide	QEL	Qx Series	EC	A
Sulfur Dioxide	Sensidyne	SS 2000	EC	A
Sulfur Dioxide	Sensidyne	Mini monitor	EC	A
Sulfur Dioxide	Soiltest	Air test systems	COL	A
Sulfur Dioxide	USI	USI portables	SS	A

Sulfuric Acid	MDA	TLD-1	COL	A
Sulfuric Acid	Soiltest	Air test systems	COL	A
Toluene Diisocyanate	Lamotte	AM-61	COL	A
Toluene Diisocyanate	Soiltest	Air test systems	COL	A
Total Oxidants	CEA	TGM 555	COL	A
Total Oxidants	Lamotte	AM-61	COL	A
Total Oxidants	Soiltest	Air test systems	COL	A
Toxics	AIM	AIM 815-Z	SC	A
Toxics	AIM	AIM 3000	EC,SC,FC	A
Toxics	Dynamation	Combo 444	EC	A
Toxics	Enmet	Tritector CGS-80R	EC	A
Toxics	Enmet	Tritector CGS-20M	EC	A
Toxics	Enmet	Tritector CGS-100SP	EC,FC	A
Toxics	Foxboro	OVA 128	FI	A
Toxics	Foxboro	OVA 88	FI	A
Toxics	Foxboro	OVA 108	FI	A
Toxics	HNU	HW-101, PI-101, GP-101	PI	A
Toxics	Photovac	Photovac 10S	GC	A,W
Toxics	Photovac	TIP, MicroTIP	PI	A
Toxics	Thermo	Series 700	FI	A
Toxics	USI	USI portables	SS	A
Triazine	Westinghouse	Bio-assay	COL	W
Turpentine	HNU	HW-101, PI-101, GP-101	PI	A
Turpentine	Photovac	TIP, MicroTIP	PI	A
Vinyl Acetate	HNU	HW-101, PI-101, GP-101	PI	A
Vinyl Acetate	Photovac	TIP, MicroTIP	PI	A
Vinyl Chloride	HNU	HW-101, PI-101, GP-101	PI	A
Vinyl Chloride	Photovac	TIP, MicroTIP	PI	A
Vinyl Chloride	Thermo	OVM 580A	PI	A
Vinyl Chloride	Thermo	OVM/GC 590	PI, GC	A,W

ELEMENT	MANUFACTURER	MODEL NAME	DETECTION METHOD	MEDIA
Aluminum	Hach	DREL/2000	COL,T	W
Aluminum	HNU	Field portable XRF	XRF	W,S
Aluminum	Lamotte	STC-AL	COL	W
Aluminum	Lovibond	PC 100	COL	W
Aluminum	Lovibond	PC 10	COL	W
Aluminum	Outokumpu	X-MET 840	XRF	W,S
Aluminum	Outokumpu	X-MET 880	XRF	W,S
Aluminum	Oxford	Lab-X 1000	XRF	W,S
Arsenic	Chemtronics	PDV 2000	SV	W,S,O
Arsenic	Hach	DREL/2000	COL,T	W
Arsenic	HNU	Field portable XRF	XRF	W,S
Arsenic	Outokumpu	X-MET 840	XRF	W,S
Arsenic	Outokumpu	X-MET 880	XRF	W,S
Arsenic	Oxford	Lab-X 1000	XRF	W,S
Barium	Hach	DREL/2000	COL,T	W
Barium	Soiltest	Water Analyzer 2	COL	W
Bismuth	Chemtronics	PDV 2000	SV	W,S,O
Bromine	HNU	Field portable XRF	XRF	W,S
Bromine	Outokumpu	X-MET 840	XRF	W,S
Bromine	Outokumpu	X-MET 880	XRF	W,S
Bromine	Oxford	Lab-X 1000	XRF	W,S
Cadmium	Chemtronics	PDV 2000	SV	W,S,O
Cadmium	HNU	Field portable XRF	XRF	W,S
Cadmium	Outokumpu	X-MET 840	XRF	W,S
Cadmium	Outokumpu	X-MET 880	XRF	W,S
Cadmium	Oxford	Lab-X 1000	XRF	W,S
Cadmium	Soiltest	Air test systems	COL	A
Chlorine	HNU	Field portable XRF	XRF	W,S
Chlorine	Outokumpu	X-MET 880	XRF	W,S
Chlorine	Outokumpu	X-MET 840	XRF	W,S
Chlorine	Oxford	Lab-X 1000	XRF	W,S
Chromium	Hach	DREL/2000	COL,T	W
Chromium	Hach	Individual test kits	COL,T	W
Chromium	HNU	Field portable XRF	XRF	W,S
Chromium	Lamotte	Octa-slide	COL	W
Chromium	Lamotte	TRL-05	COL,T	W

Chromium	Lamotte	MTRL colorimeter	COL	W
Chromium	Lamotte	STC-CR	COL	W
Chromium	Lamotte	TRL-12	COL,T	S
Chromium	Outokumpu	X-MET 840	XRF	W,S
Chromium	Outokumpu	X-MET 880	XRF	W,S
Chromium	Oxford	Lab-X 1000	XRF	W,S
Cobalt	HNU	Field portable XRF	XRF	W,S
Cobalt	Outokumpu	X-MET 840	XRF	W,S
Cobalt	Outokumpu	X-MET 880	XRF	W,S
Cobalt	Oxford	Lab-X 1000	XRF	W,S
Copper	Chemetrics	System 1000	COL	W
Copper	Chemtronics	PDV 2000	SV	W,S,O
Copper	Hach	DREL/2000	COL,T	W
Copper	Hach	Individual test kits	COL	W
Copper	HNU	Field portable XRF	XRF	W,S
Copper	Outokumpu	X-MET 880	XRF	W,S
Copper	Outokumpu	X-MET 840	XRF	W,S
Copper	Oxford	Lab-X 1000	XRF	W,S
Copper	Soiltest	Water Analyzer 2	COL	W
Fluorine	Gastech	GasTechtor 4700	EC	A
Fluorine	Sensidyne	SS 2000	EC	A
Iodine	Hach	DREL/2000	COL,T	W
Iodine	HNU	Field portable XRF	XRF	W,S
Iodine	Lamotte	TRL-12	COL,T	S
Iodine	Lamotte	MTRL colorimeter	COL	W
Iodine	Lamotte	STC-IO	COL	W
Iodine	Lamotte	TRL-05	COL,T	W
Iodine	Outokumpu	X-MET 840	XRF	W,S
Iodine	Outokumpu	X-MET 880	XRF	W,S
Iodine	Oxford	Lab-X 1000	XRF	W,S
Iodine	Soiltest	Water Analyzer 2	COL	W
Iodine	Soiltest	Air test systems	COL	A
Iron	Chemetrics	System 1000	COL	W
Iron	Hach	DREL/2000	COL,T	W
Iron	Hach	Individual test kits	COL	W
Iron	HNU	Field portable XRF	XRF	W,S
Iron	Lamotte	MTRL colorimeter	COL	W
Iron	Lamotte	TRL-12	COL,T	S
Iron	Lamotte	TRL-05	COL,T	W
Iron	Lamotte	STC-FE	COL	W
Iron	Lamotte	Octa-slide	COL	W
Iron	Lovibond	PC 100	COL	W
Iron	Lovibond	PC 10	COL	W

Iron	Outokumpu	X-MET 840	XRF	W,S
Iron	Outokumpu	X-MET 880	XRF	W,S
Iron	Oxford	Lab-X 1000	XRF	W,S
Iron	Soiltest	Air test systems	COL	A
Iron	Soiltest	Water Analyzer 2	COL	W
Iron	Soiltest	Limnology kit 3	COL,T	W
Lead	Chemtronics	PDV 2000	SV	W,S,O
Lead	Hach	Lead-Trac	COL	W
Lead	Hach	DREL/2000	COL,T	W
Lead	HNU	Field portable XRF	XRF	W,S
Lead	Lamotte	AM-61	COL	A
Lead	Outokumpu	X-MET 840	XRF	W,S
Lead	Outokumpu	X-MET 880	XRF	W,S
Lead	Oxford	Lab-X 1000	XRF	W,S
Lead	Soiltest	Air test systems	COL	A
Magnesium	HNU	Field portable XRF	XRF	W,S
Magnesium	Lamotte	TRL-12	COL,T	S
Magnesium	Outokumpu	X-MET 880	XRF	W,S
Magnesium	Outokumpu	X-MET 840	XRF	W,S
Magnesium	Oxford	Lab-X 1000	XRF	W,S
Manganese	Chemtronics	PDV 2000	SV	W,S,O
Manganese	Hach	DREL/2000	COL,T	W
Manganese	Hach	Individual test kits	COL	W
Manganese	HNU	Field portable XRF	XRF	W,S
Manganese	Lamotte	TRL-05	COL,T	W
Manganese	Lamotte	MTRL colorimeter	COL	W
Manganese	Lamotte	TRL-12	COL,T	S
Manganese	Lamotte	STC-MN	COL	W
Manganese	Lovibond	PC 100	COL	W
Manganese	Outokumpu	X-MET 880	XRF	W,S
Manganese	Outokumpu	X-MET 840	XRF	W,S
Manganese	Oxford	Lab-X 1000	XRF	W,S
Manganese	Soiltest	Limnology kit 2	COL,T	W
Mercury	Arizona	Jerome 411	GF	A
Mercury	Chemtronics	PDV 2000	SV	W,S,O
Mercury	HNU	Field portable XRF	XRF	W,S
Mercury	Outokumpu	X-MET 840	XRF	W,S
Mercury	Outokumpu	X-MET 880	XRF	W,S
Mercury	Oxford	Lab-X 1000	XRF	W,S
Mercury	Scintrex	HGG-3	AA	A
Mercury	Shawcity	MVI	UV	A
Phosphorus	Hach	DREL/2000	COL,T	W
Phosphorus	Hach	DREL/2000 (Soils)	COL,T	S

Phosphorus	HNU	Field portable XRF	XRF	W,S
Phosphorus	Outokumpu	X-MET 880	XRF	W,S
Phosphorus	Outokumpu	X-MET 840	XRF	W,S
Phosphorus	Oxford	Lab-X 1000	XRF	W,S
Sulfur	HNU	Field portable XRF	XRF	W,S
Sulfur	Outokumpu	X-MET 840	XRF	W,S
Sulfur	Outokumpu	X-MET 880	XRF	W,S
Sulfur	Oxford	Lab-X 1000	XRF	W,S
Tin	Chemtronics	PDV 2000	SV	W,S,O
Zinc	Chemetrics	System 1000	COL	W
Zinc	Chemtronics	PDV 2000	SV	W,S,O
Zinc	Hach	DREL/2000	COL,T	W
Zinc	Hach	Individual test kits	COL	W
Zinc	HNU	Field portable XRF	XRF	W,S
Zinc	Lamotte	TRL-12	COL,T	S
Zinc	Lamotte	TRL-05	COL,T	W
Zinc	Lamotte	MTRL colorimeter	COL	W
Zinc	Lovibond	PC 100	COL	W
Zinc	Outokumpu	X-MET 840	XRF	W,S
Zinc	Outokumpu	X-MET 880	XRF	W,S
Zinc	Oxford	Lab-X 1000	XRF	W,S
Zinc	Soiltest	Limnology kit 3	COL,T	W